TELEPHONY

THE JOURNAL OF THE TELEPHONE INDUSTRY

JULY 19, 1941

VOLUME 121

NUMBER 3

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"IN BUSINESS SINCE 1904"

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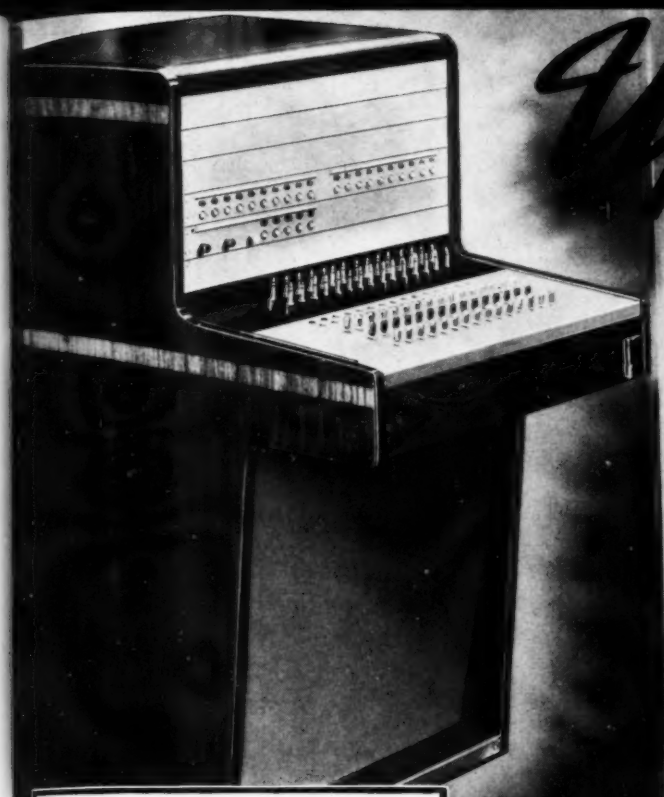
Up-to-Date

IN TODAY'S SURROUNDINGS



The No. 120 P. B. X. Switchboard

The equipment is housed in a streamlined cabinet, strikingly veneered in two-tone genuine walnut so as to be in keeping with any fine office furniture. The rich appearance of the Sun Tan face and keyboard, contrasted with the dark brown of the plugboard, is highlighted by the rich brass fittings.

Overall dimensions: Height, 3′ 9⅝″; Width, 2′ 1¼″; Depth, 2′ 8″. Wiring and Capacity: 80 lines, 15 cords, and 15 trunks.

This is an era of streamlining in all types of office equipment. Desks, filing cabinets, adding machines, typewriters, and similar equipment have all gone streamlined, both for more efficiency and greater beauty.

In keeping with this new trend are the Stromberg-Carlson No. 120 Floor Type P.B.X. Switchboard and No. 121 Cordless P.B.X. Switchboard. These boards are modern in appearance. They harmonize with today's decorative schemes. They permit the greater efficiency demanded by today's rush periods.

Operating companies which are offering these boards report a steady increase in P.B.X. installations.

Write for descriptive circular illustrating these two Stromberg-Carlson P.B.X. Switchboards in full color.

STROMBERG-CARLSON TELEPHONE MFG. COMPANY
Factory and Gen'l Offices: 100 Carlson Rd., Rochester, N. Y.
Branch Offices: Chicago, Kansas City, San Francisco, Toronto

The No. 121 Cordless P. B. X. Switchboard

Here is a switchboard of which any office would be proud. Exposed wood surfaces are beautifully finished with two-tone genuine walnut veneers so as to harmonize with fine office furniture. Panels are flush, corners rounded. The apparatus panel is covered with Sun Tan Phenol Fibre veneers. Key handles are of fine plastic, colored in pleasing shades to designate circuit functions.

Overall dimensions: Length, 2′ 2¾″; Height, 1′ 2″; Depth, 1′ 2¾″. Wiring and Capacity: 16 lines, 5 trunks, and 5 connecting circuits.

Stromberg-Carlson

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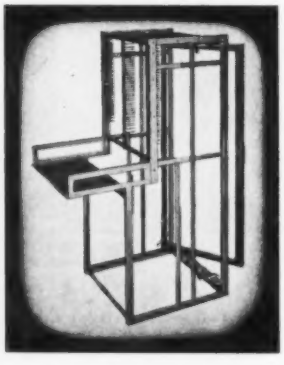
NOW

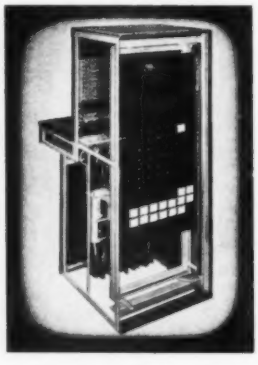
IN EVERSM

Masterbuilt Junior

FOUNDATION OF STEEL! Kellogg Masterbuilt Switchboards are built upon a rigid, all-steel framework. Lightweight, but having ample structural strength to support all equipment and cabinet woodwork.



SIMPLE AND RUGGED! Typical of Kellogg design and construction, the Masterbuilt Junior assures many years of trouble-free service. Easier to operate than might be imagined.



This is the board which takes magneto exchanges out of the rut. It brings new life, hope and encouragement to the owners and managers of small exchanges because its express purpose is to increase earnings without relying upon growth of the town. Let those who already have had Masterbuilt Junior experience tell you how it paved the way to higher earnings and lower operating costs for them. It can do the same for *you!*

. . THERE'S A VIRTUAL GOLD MINE

ERSMALL EXCHANGE ✓ ✓ ✓

Increase Earnings and Reduce Costs This Simple, Easy, Economical Way

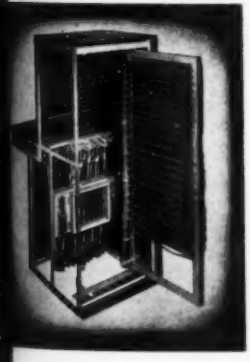
BECAUSE the Masterbuilt Junior has paved the way to higher earnings and lower operating costs for so many small exchanges throughout the country, it's a safe bet that it can be most helpful in improving your earnings too.

It's the ideal central office equipment for the smaller exchange because it's so very low in price and can furnish modern common battery service at a cost lower than that of magneto. With it, you can give your subscribers this "big city" service . . . at new rates which they are willing to pay. Being an unusually flexible board, the Masterbuilt Junior also can provide magneto service where present rates are to be maintained.

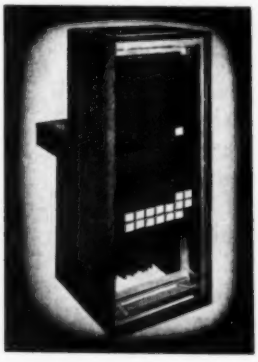
One line at a time can be converted from magneto to common battery by simply changing two connections at the switchboard. No extra switchboard expense is incurred to do this, but you immediately increase your earnings and decrease operating costs. Talking and ringing current can be furnished for as little as 10 cents per year for each common battery station! Think what this one item alone means to you in reducing expenses.

In spite of it's very low cost, the Masterbuilt Junior has proved again and again, in any number of small exchanges, that it is the easiest, surest and best way to make more money. Why not see what it can offer you? Ask your Kellogg representative for the details.

AT AND ROOMY! All of the equipment in the Masterbuilt Junior is positioned and spaced for easy accessibility. No crowding, no obstructions; everything most conveniently arranged.



READY TO SHIP! Masterbuilt Junior comes completely set up, wired and tested in the Kellogg factory. Simply connect cable to the main frame, and the installation is done.



The people of more and more towns throughout the country are enjoying Masterbuilt Junior service. These are a few of the most recent ones.

KELLOGG SWITCHBOARD & SUPPLY CO., CHICAGO

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Chance

PULLEY BLOCKS

The Chance Pulley Block is ideal for attaching guy strand or working on the pole. One man can operate it without trouble. It is easy and simple to use because merely operating the ratchet handle back and forth does all the work. Yet it is light in weight and powerful in pull—a mechanical advantage of 32 to 1. Save time and money with Chance Pulley Blocks.

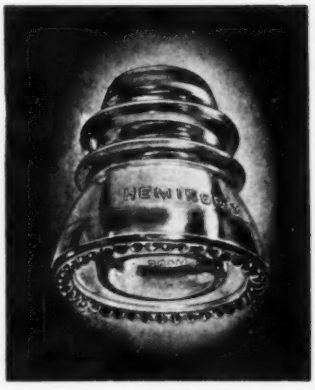
Indiana Crapo

STEEL STRAND WIRE

Crapo Galvanized Guy and Messenger Strand has the strength and ruggedness of steel which make for dependable, durable lines at ***low cost.*** The dense, tightly adherent galvanized zinc coating, applied by the patented **Crapo** Process, provides lasting protection. This wire is available in the new Crapo HTL-85 and HTL-135 High-Tensile, Low-Resistance Line Wires and in all other standard grades. Write for new comparison charts: span lengths, resistances, weights, etc.

Hemingray

INSULATORS



Hemingray Glass Insulators pass every test—tough to withstand rough handling—impervious to moisture—do not age or deteriorate—high mechanical and sustained dielectric strength—unaffected by sudden temperature changes. Made of improved, flawless glass they are homogeneous in character and stand up under heat, cold, storms and age. 11 sizes fit every need. Write us about your insulator requirements.

ARMOR-INSULATED *Hi-Conducto Bronze* DROP WIRE

20% longer life! . . . proved by millions and ***millions*** of feet in service. A special armored coat of Mica. A better method of tracer identification banishing forever the old wear-inducing raised tracer. Long life, moisture-proof insulation. The solid bronze conductor is unequalled: 85% conductivity, 32 ohms resistance, high tensile strength, flexibility and ductility. Order Kellogg Armor-insulated ***Hi-Conducto Bronze*** Drop Wire for finest "pole to phone" transmission.

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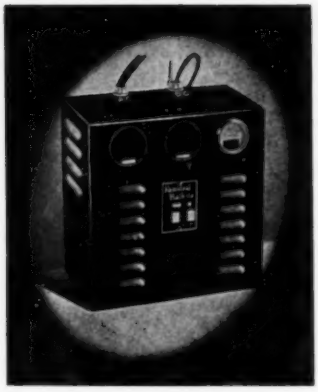

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Nicopress

REPAIR SLEEVES

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The most convenient and satisfactory way of repairing a line when it is necessary to cut out old rusty joints is with modern, time saving Nicopress Repair Sleeves. For by the use of these Nicopress Sleeves all the fuss and trouble of "cutting-in" new sections of wire to maintain the initial sag is eliminated.

Your jobs are quickly completed and the splices are tight and strong exceeding the rated breaking strength of the conductors.

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Get Rid of Noise!

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RARE GAS RELAY

- *Installed in a Minute*
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- *Thousands in Service*
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Eliminates unbalance noises in metallic party lines employing divided ringing to ground. Works with either harmonic or code ringing.

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Rare Gas Arresters
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Potheads *Housings*

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TELEPHONY

The Journal of the Telephone Industry

July 19, 1941 **Vol. 121, No. 3**

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TELEPHONY PUBLISHING CORPORATION

608 South Dearborn Street Tel. Wabash 8604

SUBSCRIPTION—10 Cents a Copy; $3 a Year U. S., Cuba and Mexico; $4 Canada; $5 Other Countries

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XUM

INDUSTRY NEEDS

High Priority Rating

IN CONNECTION with that part of Colonel Grable's article applying to priority of manufacture and supply of strategic material (see page 17 of this issue) and a general survey of conditions now existing throughout the telephone industry, it is urged that concerted action be taken by the industry—both operating and manufacturing branches—in obtaining from the OPM a definite policy on the subject.

Manufacturers report they are unable to secure without great difficulty replenishment of small supplies of items of materials they ordinarily carry in stock. This applies particularly to a few pounds of so-called strategic materials, a few dozen springs or contacts and similar articles used in manufacturing telephone equipment.

In the case of telephone apparatus only small quantities of critical materials are needed; so small that on a $50,000 order probably only a very small percentage of this amount would be consumed by priority items. Normally manufacturers would go to their storerooms for such items as a purely routine matter.

Inasmuch as the amount of strategic materials needed for telephone equipment is so negligible, it would seem that the industry should be given a priority rating which would permit manufacturers to continue to maintain a reasonable supply of these materials in stock, so that they can continue to fill orders for vital telephone apparatus in a reasonably short period of time.

Most of the orders received by telephone manufacturers are small; each requiring an infinitesimal amount of key materials, and it would be most impracticable and next to impossible for them to get such small quantities based on each individual order. The fabricator's cost of producing and handling small quantities would be great, which would make purchases on this basis prohibitive from a cost standpoint. If it were possible to obtain strategic metals in small quantities, the delay involved in securing them would further disrupt the already abnormal manufacturing facilities and processes.

To be effective, any priority on telephone equipment should permit telephone manufacturers to maintain a reasonable stock of the few needed vital materials so they can continue to fill their small orders, which in the aggregate require only a small amount of such materials. Certainly a high priority which would permit the filling of the relatively meager requirements of the telephone industry would not adversely affect the conservation of strategic materials, and it would permit the production of communications facilities which Colonel Grable forcibly emphasizes as being so vital to the defense of this country.

It should be stated here that telephone manufacturers have no "axes to grind" in the industry's effort to secure the priority rating it deserves. They probably have sufficient defense orders to keep them going for some time to come. However, it is tradition in the telephone industry that there is a close bond between operating companies and manufacturers when it is faced with emergencies such as national defense.

There is no question that great demands have been made and are being made on operating telephone companies, and still greater demands are anticipated. If these demands are to be met efficiently then operating companies must be able to secure sufficient additional equipment to maintain the present high standard of telephone service. They cannot be expected to do the job with insufficient tools.

Manufacturers are interested first of all in seeing that the industry meets its obligations. This means that to do their job in this undertaking they must be placed in a position to furnish the necessary tools to operating companies so they in turn can meet their responsibilities in the preparedness program. They have pledged themselves to do so, if given an opportunity by those initiating the responsibilities.

Priority officials need not fear that telephone operating companies have any selfish motive in seeking a favorable priority rating. They can rest assured that the industry is not anxious to expand telephone plants beyond that point which is necessary to give the nation

(Please turn to page 24)

By LT. COL. J. C. GRABLE
U. S. Signal Corps,
Washington, D. C.

Telephone Communications In National Defense

Part III. The author discusses the priority position of the telephone industry and suggests a preferred rating be considered for commercial equipment in order to maintain a complete nation-wide telephone system, so essential to national defense. Opinions expressed herein are the author's and not necessarily those of the War Department.

AT THE beginning of the war, the English had only a vague idea of the penetration of modern bombs and the damage that could be caused through earth shock. It has been found that cast iron water mains can be fractured 50 feet from a bomb crater. Water districts have been established, and engineers appointed in charge of each district.

They must have information on everything that is happening within their territory and *depend entirely upon telephone communication to the extent that practically no written orders are used.*

The same is true of communications required for gas repair gangs. Both the water and gas districts have independent telephone exchanges. Damage in one area is immediately reported to other areas to insure fast opening and closing of gas and water mains. The proximity of water and gas mains invariably means that both are cut or at least damaged in each major bomb hit.

Gas mains are immediately filled with water, and to restore service it is necessary that those mains be pumped out without delay. This is accomplished by means of fire engines, but all users of gas within the immediate vicinity must be notified by telephone to shut off all gas openings, such as ranges and water heaters.

Trained repair gangs are held at depots all over London and equipped to move fast at an instant's notice. Again separate telephone exchanges are required. To efficiently control those forces, they have established a gas control center system which is under the management of experienced executives, one of whom is on duty constantly.

They have two central stations in case one is put out of action, and are fully equipped with duplicate sets of maps and diagrams showing valves and alternate routings of all main pipe lines. These men direct the operation of the control centers and depots. They use both private line telegraph and telephones throughout.

It has been found that effective protection against severe blasts can be provided around central office equipment by 14 inches of brick. Walls are built around the more important centers, and all windows and doors are bricked in. This is effective, of course, only against near misses. Adequate overhead protection against direct hits can be secured by deep underground rooms if covered by concrete slabs.

Reports have been received that in one telephone switchboard building, 70,000 cable pairs on the main frame were repaired in two weeks. Two factors are encountered in repairing outside distribution cables disrupted by bombs.

First, the crews must get at the cables through debris, sewage, water, and gas fumes. Frequently the repair crews work in sewage and muck up to their necks and most of the time they wear gas masks.

The second major problem is that the lead melting from the electric power cables may start a short circuit, which in turn will set fire to escaping gas from broken mains. In many instances it was found that the quickest way to repair cables was to by-pass the water entirely.

There is a tremendous network of telephone cables in the underground railway tubes in the London area.

XUM

Experience has shown that none but the deep tubes (below 75 feet) are really safe. The effect of earth shock has been sufficient to damage lead sheath on cables 400 yards from the edge of the crater.

In some instances even conductors were broken inside the sheath at that distance from the crater. Coaxial cables are easy to restore but much more vulnerable than ordinary telephone and telegraph cables.

When complete telephone exchanges are put out of action, a special telephone bureau is established at once in a room where important business matters may be attended to by telephone. *No important activity is dependent upon one source of telephone communications. Wide dispersion of facilities is highly important.*

Very few old buildings will withstand bombs. The second and third floors of buildings are the safest, and most of the important switchboards are installed in those locations if at all practicable. *The placing underground of all telephone facilities, and particuarly the large switchboards, would be practically impossible. Dependence must, therefore, be placed upon immediate and efficient repairs. That, in turn, involves tremendous stocks of repair parts and complete assemblies, and an enormous number of trained men.*

It may be interesting to know that in pre-war times the elapsed time between the filing and delivery of a telegram over the British post office system averaged one and a half hours, and under wartime conditions the average is only two and a half hours. Numerous press correspondents have reported that they were able to place both local and long distance calls in the midst of severe air raids.

In general, and where facilities permit, repair work continues 24 hours a day. Splicing of cables in manholes and in the underground railway tubes can continue at night, and some construction work can be done in the evening, early in the morning and on bright moonlight nights. The rigid "blackout" restrictions prevent the use of any light except small dim flashlights.

Both city and privately owned power companies have adopted and are part of the "Grid" system. By "Grid" system is meant interconnection of power lines in every direction. This originated some years ago and has been of great assistance in minimizing power interruptions due to bomb damage in the English power stations and lines.

Members of the Signal Corps receiving training in telephone line construction.

The government policy is that anyone generating electricity must loan power to other companies when necessary. No particularly new methods of repair of lines and substations have been developed. Transformer stations are protected with brick walls and isolated and duplicated as much as practicable.

Buildings

Damage to almost every type of building has been studied and many conclusions reached. When a bomb drops inside of buildings five or six stories high, it is necessary to tear down the walls before it is safe for men to work anywhere near it.

Concussion frequently fractures load bearing wall types of buildings without the building actually being hit. Experience shows that the load bearing type of wall is the most vulnerable to the high explosive bombs.

Less vulnerable is the steel frame and reinforced concrete type of building, while the ordinary frame building will stand more blast than a regular brick and mortar building.

A steel frame building is extraordinarily resistant to the modern bomb and people are fairly safe on the second, third, and fourth floors of a six-story frame building except for bombs of the 1,000-pound type. The big bombs are not only very destructive but their frightening effect is "ghastly" largely due to the blast. The blast of one of these large bombs has been known to bring down a small house as much as 50 yards away from the crater.

No structures have been rebuilt so as to make them essentially bomb resistant to withstand the direct hit of a 500-pound or larger bomb, as the expense would be entirely out of proportion. Protection is from splinters and fire only.

By checking with engineers and scientists on the events that occurred in the California and Japanese earthquakes, the English have discovered that the effect of the earth shock from bombing is almost identical with earthquake shocks. Engineers state that earthquake construction is what must be considered when constructing the type of building that will best withstand the explosion and blast from modern high explosive aerial bombs.

Underground shelter must be provided in all new buildings, particularly buildings that are expected to house any vital activities, such as telephone exchanges pertaining to the central stations which control water, gas, and protective services.

New bomb-resistant shelters are too expensive for widespread use. The Anderson type of shelter properly covered with earth as protection against blasts and, of course, against shrapnel and bits of shell has been used in England.

One of the arguments against

building deep bombproof shelters is the bad psychological effect on people in getting used to them and letting their imaginations run riot on what will happen unless they do live in that manner.

It has been revealed that demolition bombs of from 100 to 2,000 pounds dropped 10,000 feet from an airplane speeding 200 miles an hour will strike at an angle of approximately 72°. Bombs dropped from that height and at that speed have an end velocity of approximately 750 feet per second.

The explosion of a heavy demolition bomb creates a violent increase in pressure that may rip to pieces everything in its immediate vicinity and blow to extraordinary distances fragments of every description. Objects not shattered or blown in by pressure waves may be pulled by their weaker, reverse vacuum toward the center of the explosion.

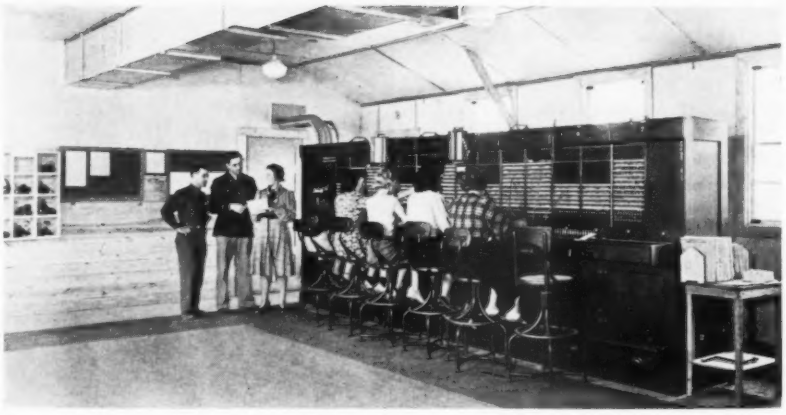
Where the British consider second, third, and fourth floors of a building safest, the rule might not hold true of buildings of various heights in the United States. In London, the limiting height of buildings may lead to conclusions which would not entirely apply to the skyscraper type of building used universally in this country.

Sabotage of Communications

Very few reports are available on sabotage or methods used to prevent sabotage of communication facilities. Actually, the damage that could be caused by indiscriminate sabotage, such as driving nails in cables, throwing explosives in manholes, and using acid on electrical equipment, would not be serious, but more on the order of annoyance, and service could usually be restored in a short time.

There is considerable talk of wire-tapping. An analysis of wire-tapping will show that the effort is greatly out of proportion to the amount of information received, unless the wire-tapper can gain access to a building housing one or more important offices and, by some means, manage to tap the wires leading to individual telephones used constantly by those in authority. Even then it means that a 24-hour watch has to be kept on each individual circuit on the slim chance of picking up bits of information that might be of value.

All employes of public utilities must be investigated to the extent that there is no question as to their loyalty. Usually old employes, and by that is meant employes of five or six years' service, can almost be given the benefit of the doubt.



Former operators of the New England Telephone and Telegraph Co. operating switchboard at Camp Edwards.

New employes, particularly ones who appear to have excellent experience and are well qualified in their line of work, suddenly applying for a job may be open to suspicion.

Common laborers, such as janitors, office boys, and other unskilled labor around a highly important public utility, might also be likely agents of persons attempting to gain information or cause damage to equipment.

Present Communications Plans

At the present time, plans for telephone communications systems pertaining to Aircraft Warning and Air Defense Services do not contemplate any complicated equipment or methods differing to any great extent from those now used in standard commercial practice.

Small PBX systems for Air Raid Precaution Service and gas, water, and other utility repair groups will conform essentially to commercial installations. Some complications of minor importance may arise in the installation of duplicate communication centers where it is expected that a change-over from a damaged system to the alternate system must be effected in the shortest possible time.

Steps that can be taken prior to major emergency should include a survey of the availability of repair stocks and where practicable reliance should not be placed on one warehouse or storage yard. Consideration should be given to the amount and types of repair parts that may be required to maintain telephone systems in case they should be damaged by military action.

Practice maneuvers such as are held constantly by military organizations would be of considerable benefit. Problems could be prepared covering the action which should be taken to restore service in the shortest possible time if certain key points of the system or portions of the equipment should be damaged or destroyed, and given to central office and outside plant personnel for solution.

Duplicate sets of cable records must be available at all times and kept in such manner that it would be almost impossible for both sets to be destroyed simultaneously.

At large central offices, arrangements could be prepared beforehand for the connecting of important stations temporarily to a small manual switchboard while repairs are being made to the exchange equipment.

Plans could be worked out on paper for the establishment of such temporary service at any time and revised as conditions change. Plans could also be made for rerouting of facilities around important junctions, even to the extent of splicing in stubs in manholes near vulnerable centers.

These stubs should contain all highly important circuits and be tagged in order that the minimum time would be lost in identifying circuits and extending them either by cable or temporary wire to a small manual switchboard, or around serious damage and reconnecting on the other side of the break.

Normal fire fighting equipment and precautions must be greatly augmented. Around all electrical apparatus, extinguishers of the carbon dioxide type should be available in sufficient number that one or more can be reached in the shortest prac-

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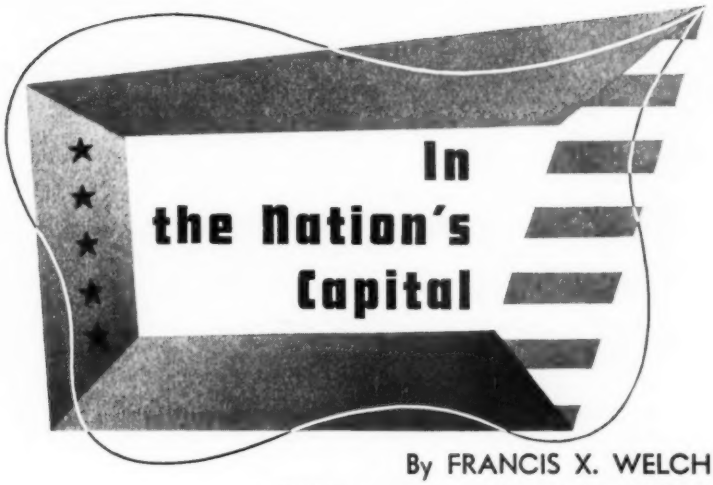

By FRANCIS X. WELCH
Washington Correspondent for TELEPHONY

Effect of Price Control on the telephone industry emphasized . . . Mr. Welch states that utility business probably has more of a stake in the current controversy on Price Control than other major industrial groups.

LAST WEEK this department said that Price Control was just about the most important development looming for the telephone industry in Washington today. In view of the flurry over priorities and shortages in raw materials, surely the patient reader must be constrained to heckle, "Prove it!"

Well here goes: *The telephone industry in common with other public utilities probably has more of a stake in the current controversy on Price Control than any other major industrial group.*

That is a broad statement. So let's get to work on it. We know well that the price which telephone companies charge for their service has been fixed for a long time by the state commissions and, as to some phases, by the FCC. It is for this reason that the possibility of a rising level of operating expenses, resulting from uncontrolled price rises in labor and materials which telephone companies must buy, threatens to crush utilities financially—against the ceiling of the relatively rigid control of their own price for service.

Of course the law gives telephone companies the right to go to the state and Federal commissions for rate increases if they are unable to make ends meet. But as a practical matter, we all know that political resistance to rate increases is so strong, and the time lag between applying for relief and granting relief might be so great, that the idea of such *regulatory* escape is, in many instances, not an optimistic one. Some regulatory legalists may quibble about that, but it is, in the final analysis, simply a realistic view of the situation.

We need only remember what happened to the railroads during World War No. 1. Then, material and labor prices increased faster than the railroads could even file separate petitions for rate increases in various classes of service. To prevent a financial collapse that threatened the very operation of the nation's transportation system, it became necessary for the Federal Government to take over the lines.

Fortunately for the railroads, the temper of Congress and the administration at that time was such that provision was made for the return of railroads to private management. We can't be so sure that those in control of the present administration would be so meticulous about returning to private management anything that the Federal Government may have to take over as an emergency measure. Indeed, to speak bluntly, there are entirely too many radicals in high places of government today who would welcome just such a solution to an economic impasse between all forms of public utility operation and a runaway price inflation.

That, roughly, is why it is so important for the utilities that there should be no runaway price inflation—that Price Control should be put into operation effectively, but soon. This statement may provoke the memory of regular readers of this department concerning the number of times your correspondent has argued against the extension of regulatory controls or the centralization of more power in Washington. But these are not normal times.

True, universal Price Control, which is essentially an attempt at artificial manipulation of natural laws of supply and demand, is risky enough. But the only alternative ahead seems to be a full-blown price inflation which might easily wreck the nation's economic structure, or what is left of it—beginning with

the utilities. Viewed in this light, Price Control is distinctly the lesser of two evils. And we have fallen upon such evil times that there is no wholly good or safe path left open to us.

Has anything been done about Price Control so far? Yes. Leon Henderson, boss of the Office of Price Control and Civilian Supply—OPACS—has done a whale of a good job with very little statutory authority to support him. Mr. Henderson has been using a policy which seems to be a combination of flattery, Sunday-school lectures, and just plain bluffing. Strangely enough, it has worked pretty well. This is shown by the fact that while our industrial production has increased during the past year from 115 to nearly 150 (F.R.B. Index), wholesale prices during the same period have risen only 7 per cent and cost of living has increased only 3 per cent.

But Leon Henderson is just about at the end of his rope. He has gotten all he can out of his courageous wheedling-and-bullying strategy, which he has been using without a fig leaf of statutory authority to cover his operations.

Up to now, Mr. Henderson had been relying upon voluntary cooperation of businessmen (which he says has been splendid) plus a program of "pitiless publicity" for a few dissenters. But he has not attempted any general price fixing on all forms of commodities and services. He has busied himself with cracking down on the most prominent industrial head which poked itself above the general price level. It is easy to see that, in the long run, this is just about as futile as trying to stop a landslide with a bucket and shovel.

The alternative is universal price freezing authority, which we will hear a great deal about in the weeks just ahead. There are several refinements in various plans proposed to accompany this. The one most prominently mentioned is that of the "universal ceiling" advocated by Bernard M. Baruch, whereby the price of all commodities would be immediately frozen as of a given date.

Mr. Henderson is not entirely sold on the Baruch method, for reasons which we need not go into here. But there are other critical barriers, chiefly political, which stand in the way of adoption of *any* kind of price fixing. They are so formidable it is easy to believe that Mr. Henderson would gladly settle for the Baruch plan if he could get it *now*.

USITA Committee Meets Priority Officials

The National Defense Coordinating Committee of the United States Independent Telephone Association on July 15 in Washington, D. C., met in a conference with Edward R. Stettinius, Jr., director of priorities of OPM; Leon Henderson, director of the Office of Price Administration and Civilian Supply; Chairman James L. Fly of the FCC, and Maj. Gen. J. O. Mauborgne, chief signal officer of the Army, to present data showing the need for a preferred priority rating for the telephone industry so that it can maintain the present high standard of telephone service, so essential to national defense.

The association's committee is composed of President Carl Brorein, chairman; E. C. Blomeyer, vice chairman; J. H. Agee, Gustav Hirsch and J. F. O'Connell. Louis Pitcher, executive vice president, and Clyde Bailey, Washington representative of the association, also attended the conference.

Francis X. Welch, TELEPHONY'S Washington correspondent, will present a report on this conference in next week's issue.

After all, time is of the essence. Price inflation is like a rolling snowball. You have to catch it near the top of the hill, or the chances are very good that you are not going to stop it at all.

As we have seen, prices have only started to move up. Thus, if we agree that a noninflated, reasonable price of a given unit (let us say an automobile tire) is $10 as of today and it moves up to $10.05 before we can get a price-fixing law through Congress, it might be easy enough immediately thereafter for the Price Administrator to chuck a block under the price rise and force it back a few cents to the pre-inflationary level of $10.

But if the inflation has operated long enough for the unit to go up to $20, while Congress wrangles over Price Control, it would be almost economically impossible by fiat regulation thereafter to force the price to drop suddenly to $10. Under such circumstances, the available supplies would all disappear. Bootleg markets such as the Black Bourse of Paris would begin to spring up in commercial back alleys, like poisonous mushrooms.

It sounds simple enough on paper to say "All right, let's have Price Control and be done with it." Politics intervenes at this point. Opposition sprouts from the labor bloc, the agricultural bloc, and other blocs. One bloc trades with the other bloc in Congress, and you have the same old story of log-rolling which, if not squelched, will inevitably torpedo any Price Control legislation.

One does not have to have a college education to figure out that the government cannot hold prices down with one hand and pull wages up with the other. One man's price is another man's cost. And one man's cost is another man's wage. If you attempt to exempt wage control from your Price Control picture, or if you attempt to exempt certain pet crops of the agricultural group, or if you make any other important exemption, you might just as well throw the whole business in the legislative wastebasket. A price ceiling won't work unless it covers everybody and everything on the nation's economic premises.

That is why Leon Henderson and other administration leaders face such a difficult task—first, in getting Price Control legislation through Congress at all; and, second, in getting it through in time to do any good. But there is hope. Let us have some of that shrewd manipulation on the part of the administration, at which it has proven itself so adept heretofore; and the opposition can be put to rout. And, as we have seen, this is to the advantage of the utilities if they are ever going to escape being caught between the upper and lower grindstones of rising operating costs and rigidly fixed service rates.

So far Congress has not shown a very statesmanlike attitude. Indeed, it seems to be more concerned with putting *floors* under various commodity prices than in putting *ceilings* over them. Evidence of this can be seen in the recent law which guaranteed 85 per cent of parity prices for certain agricultural products. Evidence of this is also seen in the refusal of Congress to curb strikes in connection with defense activities.

In the latter respect it would appear that if Congress hesitates to block defense strikes as a result of intimidation by the labor bloc, it is not going to swallow very easily the inevitable wage-fixing statute which

(Please turn to page 31)

XUM

MOST telephone companies at one time or another transport poles on trailers, which is entirely satisfactory when proper safety precautions are observed. However, when safety precautions are not observed, long poles on a trailer in present-day highway traffic can present a real danger. Warning flags should always be placed on the ends of poles at the rear, for poles are most difficult to see when approached in a fast moving automobile.

Trailer used for pole hauling.

Special precautions should be observed at street intersections, corners and railroad crossings. We recently visited the scene where a pole trailer had gotten caught between the automatic gates of a railroad crossing over on the Eastern Shore of Maryland. The driver escaped, but the truck and trailer were completely wrecked.

* * *

In a recent letter from H. W. Jewell, chief engineer, Pacific Clay Products, he informs us that they have been very successful in the use of rubber bandage for making joints in single clay conduit in Southern California. A recent examination of joints made in this manner several years ago found the rubber as good as new. This at first may seem peculiar, but rubber technologists tell us that the best possible way to store rubber is to bury it in the ground. We agree with Mr. Jewell that it does seem entirely possible that the use of rubber bandages may eventually be extended to multiple clay duct with success.

* * *

It seems peculiar that the "hanging" handset type of telephone is not more generally used for installation in residences. Rather than use this convenient type of telephone, the favored practice seems to be to install a desk type telephone on a stand in a hall or other location where it can be stumbled over frequently. Certainly, the "hanging" handset is as convenient to use in every way as is the desk type instrument.

* * *

The telephone company has surely been having its troubles lately expanding facilities to care for the rapidly increasing population in Washington, "The Boom Town on the Potomac." This boom, from a telephone standpoint, is unlike anything in history, for people these days talk more over the telephone than they did a few years ago. It is certainly more satisfactory in Washington to conduct all possible business over the telephone than to fight heavy street traffic in this overcrowded city.

* * *

H. O'Brien of the Western Electric Co., New York City, paid us a visit recently and we enjoyed a long talk with him on manual switchboard development and how these may be used to solve present day telephone problems.

* * *

We hear that collections from pay stations are steadily increasing in many parts of the country. We have always contended that most telephone companies do not develop their pay station business properly. Frequently, while traveling cross-country by automobile, we have attempted to locate a pay station near a parking place without success.

Undoubtedly, many filling stations could be equipped with pay stations to the general benefit of both the traveling public and the telephone company. There seems to be little doubt that in the not too far distant future, pay telephones will be located at regular intervals along all main traveled highways.

AC TEST METHOD: The following "kink" has been submitted by Lee C. Sprague, superintendent, Southeast Arkansas Telephone & Power Co., Star City, Ark. Mr. Sprague says:

"I use 115-volt, 60-cycle AC on my test board and find it especially helpful. I connect the AC to the testboard through a 1 to 1 transformer which is merely a ring-through type repeating coil. A 40-watt incandescent light bulb is connected in series with the primary for protection. A high resistance AC meter is used for testing.

"A highly accurate meter is not required and the commercial 2 per cent meter will prove satisfactory. With this meter, I can approximate the capacity to ground on long lines by keeping a record of normal readings and then make a good guess as to the approximate location of trouble. I also

(Please turn to page 37)

The Operator's Corner

By MAYME WORKMAN
Traffic Supervisor
The Illinois Telephone Association

PERHAPS the noisiest day of the entire year is July Fourth, the day commemorating the signing of the Declaration of Independence. In our part of the country we associate firecrackers and other fireworks with this particular day. In other parts of the U. S. A., particularly in the southern states, Christmas is the great time for fireworks. In England they are used on the fifth of November — Guy Fawkes Day. In South America they are used on all festival days. In China, where fireworks were first made, and where most of the world's supply comes from, firecrackers are set off on New Year's day. In some Chinese cities they are fired at almost all hours of day or night to frighten away evil spirits.

We were discussing the detrimental effect of unnecessary noise in connection with handling telephone calls when a retired telephone worker remarked: "Remember where our old central office was located? The kids used to congregate in the alley, right in back of our toll switchboard, and shoot those giant firecrackers. The Fourth of July was always a nightmare to us and we were fit to be tied when the day was over." Yes, those were trying times and many a youngster lost a finger, a hand and, in some cases, his very life before the sale of dangerous fireworks was prohibited.

While firecrackers and other Independence Day noise makers are no longer as much of an annoyance to telephone workers as they used to be, there are plenty of everyday noises which have an even more detrimental effect on our work. Particularly in the larger cities, such things as automobile horns and screeching brakes, noisy trucks and busses—not to mention riveting machines, sound trucks and radios—often seriously affect the quality of work done by employes and executives alike.

Many cities in the past few years have made definite strides in the direction of eliminating unnecessary noise. Because of the detrimental effect of noise upon the service we are rendering, telephone companies and their employes should be interested in noise abatement campaigns sponsored by city officials or civic organizations in their communities.

The following is a compilation of complaints from many tourists, visitors and local people regarding unnecessary noise:

1. Unnecessary sounding of automobile horns.
2. Other unnecessary automobile, bus and motorcycle noises.
3. Loud and excessive noise, particularly at night, in loading and unloading vehicles.
4. Poorly maintained trucks and other equipment with unnecessary rattles and noises.
5. Radios, loudspeakers and particularly mobile sound advertising.
6. Those taxi drivers who quarrel under your hotel window.
7. Newsboys shouting unnecessarily throughout the day and particularly after 10 o'clock at night.
8. Banging trash and garbage cans.
9. Those silly "wedding chases," with horns blowing and tin cans banging through the business sections.
10. Friday and Saturday night automobile processions with horns tied down after football and basketball games.

According to one individual's opinion, "If business men realized the annoyance and actual loss of efficiency and business unnecessary noise causes, they might urge better enforcement of existing regulations, and new ones if necessary!" And to this the writer adds "Amen."

Questions from Illinois Operators

1. Who collects deposits from pay stations, the tributary operator or the toll center?
2. Should a toll center operator make one wait anywhere from three to six minutes before she answers?
3. What should you do if the toll center operator rings you in the ear continually?
4. When subscribers demand to know who is talking on a line they wish to be connected with, what phrase do we use?
5. When completing a person-to-person call and we get the information the called party can be reached at another number, is it necessary to ask the calling party if he desires the call to be tried at that number?

The answers to these traffic questions will be found on page 32.

▼ ▼

Carl H. Mote Testifies Before Senate Committee

Testifying on June 30 before the Senate Military Affairs Committee in Washington, D. C., Carl H. Mote, president of the Northern Indiana Telephone Co. and the Commonwealth Telephone Co., North Manchester, Ind., opposed passage of the so-called "property seizure" bill introduced at the request of the War Department.

Mr. Mote called the bill "unnecessary," and asserted it was part of a "political conspiracy" to establish a system of national socialism.

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The Telephone In National Defense

(Continued from page 12)

ticable time. Buckets of sand and, in some cases, asbestos or other types of mats for smothering flames must be available.

Windows required for light and ventilation to the extent that bricking in would be a decided disadvantage should be provided with steel mesh screens and fabric to reduce the danger of flying glass. Rooms in which people must continue to work during an actual raid should be provided with steel shutters at all windows.

Continuous pressure testing is used extensively throughout the United States on important toll cables and, in some cases, exchange cables. It is not considered that universal use on exchange cables would be of sufficient value to justify the expense. Under actual war conditions, reliance will have to be placed on ordinary reports of trouble because the volume of major interruptions will probably be so great that very little work could be done on minor trouble such as continuous pressure would show.

Aerial construction is vulnerable to damage from bomb fragments and shrapnel which may cause immediate trouble by damaging the sheath on lead cables or rupturing the lead enough to cause trouble as soon as moisture collects in the break.

Unless it is desired to protect underground cables from all possible damage, there is not much necessity of going below the standard 24 or 36 inches with underground construction. To insure protection against all damage, it would be necessary to go 15 or 20 feet below the surface of the ground, and even then a direct hit by a large size bomb would probably cause some damage.

None but the normal covering need be used on underground cables or conduit because such covering would be useless against a direct hit and probably of little value against near misses.

Army Telephone Systems

There are two separate and distinct phases in providing communication facilities for War Department activities. The first phase covers the installation of post telephone systems at new cantonments and airfields; PBX boards for procurement districts in cities; and individual telephones for small activities, such as recruiting offices, inspection districts, etc.

At the present time, this phase is beyond the peak. Practically all cantonments and air bases are now, or will be within a short time, fully garrisoned. Surveys are being made and suitable locations investigated for the housing of new divisions of infantry and armored units if further increase in the Army becomes necessary.

The second phase pertains primarily to actual or simulated wartime operations rather than mobilization. Air defense of strategic or highly important areas as, for example, a group of airplane or ordnance manufacturing plants, requires anti-aircraft batteries located at specified intervals in and around those areas.

A very complete and flexible telephone network must be available to enable local commanders to utilize their anti-aircraft weapons to the best advantage. Alternate lines and equipment must be available. Commercial facilities will be used to the greatest extent supplemented where necessary by wire and telephones installed by the troops.

The anti-aircraft commanders' headquarters is the usual location for the switchboard to which lines from battery commanders, observers, higher commanders, and associated units are connected. The area covered might be approximately 25 or 30 square miles; and even before the guns are actually placed, surveys of existing cable and wire facilities should be made and tentative plans prepared in order that the service may be provided as rapidly as possible when needed.

Coastal defense depends upon fixed armament at existing harbor defenses and mobile forces able to go into position at strategic points along the coasts.

Railway artillery has equipment and personnel for the purpose of installing fire control communications, but it is often found that time may be saved and a more elaborate system of fire control made available if use is made of the existing commercial facilities in the vicinity of the contemplated location of the railway battery.

The guns are usually of major caliber, requiring observers and spotters at distances up to as much as 30 miles from the guns; and to speed up the placing of guns in action, detailed plans should be prepared showing the availability of existing commercial facilities, such as toll lines, farmer lines, railroad dispatching wires, and exchange facilities at all possible locations where railway artillery might be used.

Inspecting a cable splice in Army camp.

Priorities Serious Problem

Not a great deal of an authoritive nature can be said about the priority of strategic materials required for the manufacture of communication equipment except to give a general picture of the present and probable future conditions.

Throughout this article, the vital necessity of adequate communication facilities for the fighting forces of the country has been brought out. Regardless of how vital communications may be, the equipment and facilities must still be judged along with other vital needs.

Strategic material required for the building of airplanes, for example, cannot be diverted to the manufacture of communication apparatus if a suitable substitute can be found for the latter. Materials and manufacturing facilities required for the fabrication of communication equipment for the national defense forces cannot be diverted to commercial fields unless it can be shown that the commercial facilities are actually required within a reasonable time for use by defense forces.

A fairly high priority is given to

the manufacture of telephone equipment needed at newly established cantonments and training centers. A similar priority usually can be secured for commercial company equipment required for trunk line connections to the Army's equipment.

However, in connection with priority on the manufacture of equipment required to expand commercial telephone facilities because of increased demands for service, brought about indirectly by the preparedness program, it would seem that, in view of the value of an expanded and efficient overall national communications system to the defense program, it might be well to consider placing the telephone industry in a high priority classification for equipment needed to expand telephone facilities for commercial use.

An extended telephone system would mean a more complete local and toll coverage of all sections of the country — remote as well as thickly populated—which ultimately would be highly beneficial in an all-out defense of this country.

In case of aluminum, commercial telephone equipment was placed in a "B-7" priority classification — next to the lowest rating—and, while the writer is not in a position to recommend or judge the proper rating which should be given the telephone industry, it would seem the aluminum rating is low for an industry rendering services so vital to national defense.

Under the present procedure, a customer wishing to obtain equipment from a manufacturer within a specified time may present complete and detailed facts showing why the equipment is required within that time limit. If the circumstances are such that lack of such equipment may delay an activity associated with national defense, assistance can probably be obtained through the defense agency affected. If the case has no connection with national defense, the full circumstances of why the delivery should be expedited in the interest of public demands would have to be brought out.

Equipment Standardization

Invariably, each telephone engineer has a pet circuit or a particular design of equipment which he considers the last word, and he convinces his purchasing agent that that circuit or design must be incorporated into the switchboard being purchased by his company.

As a result, switchboard manufacturers have found it economically impracticable to build and stock switchboards of any type. Probably no one has ever realized the effect this would have with regard to national defense.

Switchboard manufacturers would, without a doubt, manufacture and place in stock a considerable number of positions of both multiple and non-multiple switchboards of their standard type if they knew that sooner or later that equipment could be sold. Knowing, however, that almost every order they receive is different in some minor or major detail from other orders, they are forced to manufacture only as and when orders are received.

In the past six or eight months when the expansion of the Army demanded switchboards of all types and kinds in considerable quantities, it was found that due to the above circumstances no manufacturer could go into a warehouse and furnish a switchboard on short notice with the exception of such stock as might be on hand to cover fires, floods, and other damage—what is commonly known as "fire stock." It would be of great benefit to the interests of national defense if telephone companies would, when contemplating purchase of new equipment, go to their favorite manufacturer or obtain quotations from two or more manufacturers on the manufacturer's standard switchboard modified only to the extent that was absolutely necessary to fit the individual needs of the company in question.

This would enable the switchboard manufacturers to stock partially equipped boards during slack periods and the expenditures would be justified because they would know that sooner or later they would be able to move the stock. This might also result in some reduction in cost as well as being of great benefit to national defense.

(EDITOR'S NOTE: *The photographs used to illustrate Colonel Grable's article were published through the courtesy of the U. S. Signal Corps.)*

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New England Bell Plans Major Toll Cable

A new underground cable route over a distance of nearly 144 miles from Boston to Brunswick, Maine, will be constructed during 1941 and 1942 as a major addition to the long distance cable network of the New England Telephone & Telegraph Co. serving northern sections of New England. It will provide an alternate route and additional facilities to meet the growing demand for long distance service in a large area extremely important to national defense from both the standpoints of industrial production and military protection.

The project, largest of its kind in the company's history and involving gross expenditures of $2,279,800, was approved July 1 by the Federal Communications Commission. Sharing in it with a minority interest is the American Telephone & Telegraph Co., which will employ the new facilities for its traffic from points outside New England to Maine and the Maritime Provinces of Canada.

It is planned to start construction work this fall and to have the new route ready for service next summer. Initially it will provide about 20 per cent more long distance circuits between Boston, northeastern Massachusetts, Maine, New Hampshire and Vermont, and ultimately will permit doubling the present facilities, thus affording circuits thought to be sufficient to meet service demands over many years.

The maximum num'er of pairs in the new cable will be 150.

▼ ▼

Ohio Bell Installs Emergency Generators

Installation of Diesel-powered generator systems in important Ohio cities to make it possible to maintain telephone service despite power failures has been announced by the Ohio Bell Telephone Co.

The units, operating entirely independently of outside current, would be placed in service in the event that natural or military action should disrupt normal power transmission. More than a score such units will be installed in the state.

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Arkansas Association to Meet in September

A letter from President S. A. Lane of the Arkansas Telephone Association reports that the association has scheduled its annual convention for September 22 and 23, at the Arlington Hotel, Hot Springs.

Mr. Lane sends his best wishes, and states that telephone men from out-of-state are cordially invited to the Arkansas meeting. An excellent program is being planned.

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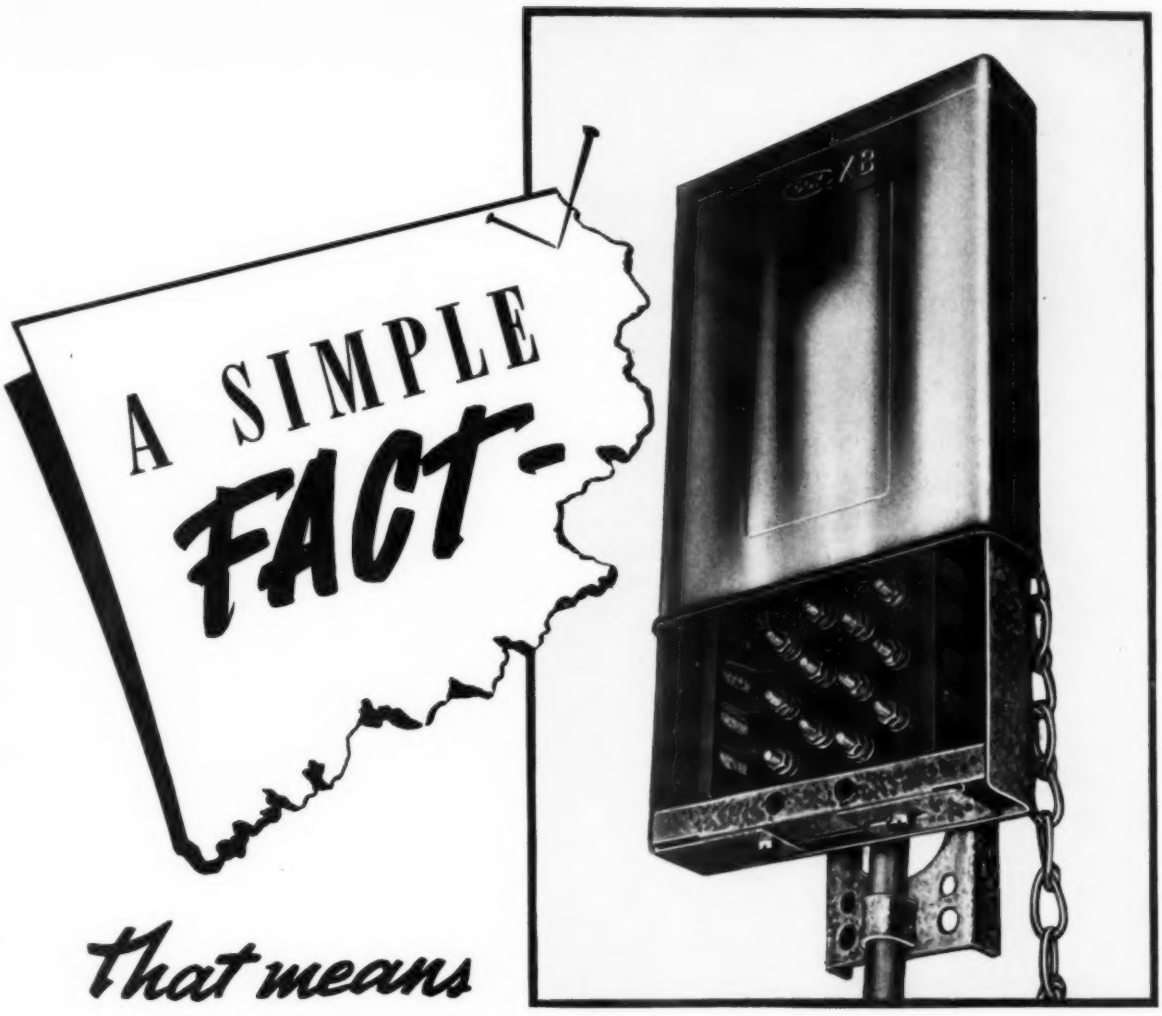

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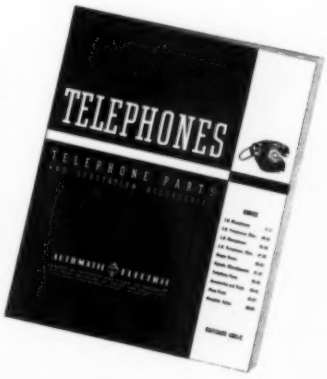

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McCULLA REPORTS ON NORTHWEST

At National Chamber Meeting

Address of H. F. McCulla, general commercial superintendent of Lincoln (Neb.) Telephone & Telegraph Co., who told nation's business leaders of general business and defense activities in his territory at recent annual convention of U. S. Chamber of Commerce.

H. F. McCULLA

ABOUT TEN years ago we in the northwestern division of the U. S. Chamber of Commerce (composed of Minnesota, North and South Dakota, Montana, Wyoming and Nebraska) began to hear talk of a general business depression. It was not long until we began to feel the very definite effects of the depression, experiencing them in a degree similar to those experienced in other parts of the country.

However, it seems that other sections of the country experienced some relief from depression conditions, starting as early as seven or eight years ago. Unfortunately for our part of the country, we were entering a second depression period caused in a large measure by drouth conditions. You are familiar with the term "dust bowl" and know that it has been applied to certain states of the northwestern division, particularly North and South Dakota and Nebraska.

The economic and business dislocations resulting from the general depression were severe and costly, but the most devastating effect on economic and business conditions has been caused by the continued drouth. In a section of the country depending either directly or indirectly upon agriculture, it requires no great imagination to visualize the disastrous effects of a prolonged drouth.

A very accurate measure of the effect of the continued unsatisfactory business conditions can be found in the population factor as applied to the decade of 1930 to 1940. During this period, with the exception of Minnesota, the states of the northwestern division lost approximately 3 per cent of their population. The importance of this factor is brought into sharper relief by a comparison with the national population gain figure which was approximately 7 per cent.

It is reasonable to assume that the migration of people from the drouth-ridden states was the final gesture in the courageous struggle of a people to maintain and retain their homes and farms. But, after 10 years of depression and drouth, many of them were forced to admit defeat and move elsewhere in order to gain a livelihood.

Much emphasis might be placed upon the effect of such a migration upon the spirit and morale of a people, but in this particular situation such emphasis would be out of place, for in spite of the negative effect of such an unhappy experience the morale of the populace of the northwestern division remains on a very high level.

From a strictly business point of view, however, it must be admitted that there was a continuing and very unfavorable effect upon those factors that are of major importance in any business situation. The four factors to which we direct your attention are:

(1) Value of property
(2) Market for goods and produce
(3) Opportunities for employment
(4) Availability of credit and working capital.

The negative effect upon these factors will tend to point out very definitely the relationship between population and the growth or retrogression of a particular section of the country.

It might be well to call to your attention the fact that the northwestern division contains states that constitute a portion of the nation's "bread-basket" and which are important states in the national picture because of their production of livestock and grain.

It may not be apparent to you why we are reviewing certain phases of a matter that may seem of relative importance only and perhaps of no importance at all if you do not live within the boundaries of the area which constitutes the northwestern division.

However, you will realize that in a nation that is as integrated as is our nation, in which the boundaries of time and space have been largely eliminated, each section of the country is of prime importance to every other section, and long continued unfavorable economic and business conditions in one section will inevitably affect all others.

The factors mentioned previously lead us in our thinking to the question of national defense activities. Consideration of this phase of the subject brings us face to face with the realization that in the loss of population in the northwestern division we have lost not only farmers and agriculturalists but skilled labor as well.

While agriculture is an important item in the scheme of things in our section of the country, there are innumerable industries that have given training and employment to literally thousands of our people.

As indicated previously, industry, both large and small, being dependent either directly or indirectly upon agriculture, has been affected by the depression and drouth years. So it is apparent that the migration of workers from our states would mean the migration of many skilled as well as unskilled laborers.

Unfortunately, the creation of de-

XUM

fense activities in other sections of the country has given emphasis and impetus to the migratory trend with the result that in certain cities in the northwestern division there remain no skilled laborers and all too few unskilled laborers available for training. This situation operates as a two-edge sword, for in the drawing off of skilled laborers, the cost of training the unskilled laborers results in mounting costs for industry, which means mounting costs of industrial production of all kinds.

The consciousness of this very unfavorable effect upon conditions in general and particularly upon industry led to the calling of a meeting at Kansas City at which there were in attendance representatives of business and industry, not only from the states comprising the northwestern division but from other states in that section of the country as well.

The entire purpose of this meeting was to call to the attention of those responsible for the placing of defense materials contracts the fact that irreparable damage was being done to a portion of the country that was entitled to at least equal consideration with other portions of the country.

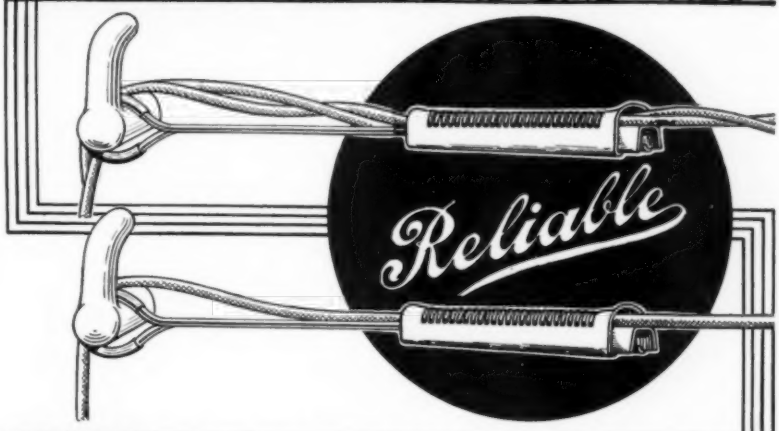
In this connection we point out the unfavorable effects of overcentralization of labor in relatively congested areas resulting always in the creation of problems that are difficult to handle. We admit that such concentration and centralization leads to temporary prosperity, but the inevitable let-down after the period of prosperity has passed brings with it unpleasant and costly repercussions. I need not point out the factors of unemployment, of relief, and of social problems, for you are familiar with these from past experience.

In a recent issue of a popular pictorial magazine there appeared a very interesting report of an analysis made by a northeastern state, in which analysis an effort was made to determine what the state had to offer along defense materials lines and why it was the best state in the Union in which to concentrate defense material activities.

We have no quarrel with the state which made this analysis or with the analysis itself; in fact, we commend the business leaders of this particular state for their foresight and ingenuity and believe they have pointed the way for the making of similar surveys in all other states.

Certainly the information thus gained, if properly correlated and

"STANDARDIZE DEAD-END TIES"



DROP WIRE CLAMPS

- The type "P" drop wire clamp is
- an ideal device for attaching
- No. 17 B&S twisted pair or
- parallel drop wire to poles and
- buildings. It prolongs the life of
- the drop wire, permits free
- swinging at the tie, places all
- of the wear on the hardware
- and eliminates the sharp bends
- necessary with other methods.

This clamp is easily and quickly installed, making a very neat installation. Slack in drop wires can be taken up quickly without leaving any weak spots on the wire. Write for samples.

Reliable ELECTRIC COMPANY
OVER 30 YEARS SERVICE TO THE UTILITIES
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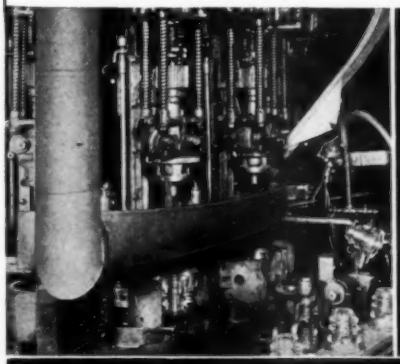
ACCURATE GAGING OF "WT" INSULATORS
assures a true pin fit

YOU can't get a snug pin fit without a true pin-cavity. Armstrong's precision manufacturing methods, constantly verified by careful and accurate gaging, assure that no Whitall Tatum Glass Insulator leaves the factory unless it *has* a true pin-cavity.

Shown below, left, is Armstrong's automatic insulator-making machine, which eliminates human errors. Every "WT" is tested in accordance with A. S. T. M. standards — guaranteeing top performance. For complete information, samples, and prices, see your jobber or distributor — or write Armstrong Cork Company, Glass Insulators Dept., 295 Fifth Avenue, New York City.



CAREFULLY GAGED FOR A TRUE PIN FIT

WHITALL TATUM GLASS INSULATORS
MADE BY ARMSTRONG

"Here's what I like about these CHANCE CABLE RINGS..."

● Chance No-Tangle Cable Rings are easy to install. Practically no gripping is necessary — "just a simple little twist of the wrist" and they're on. How come? It's in the leverage you get from the spiral hook.

● The spiral gripping hook not only makes possible a leverage action which simplifies installation but prevents slipping in either direction making it possible to pull cable through either way without fouling the line.

● When the load of the cable is applied the messenger wedges into the shoulder hook. A specially constructed shoulder on this hook prevents jumping off.

● The curved bearing surface of Chance No-Tangle rings minimizes cable cutting and sheath wear and makes easy riding for cars with less damage to car wheels.

The smooth galvanizing also reduces wearing friction and adds to the life of both cable and rings.

● The No-Tangle package makes Chance rings easy to handle on the job. The cardboard pack is easily broken with one hand.

● Chance No-Tangle Packed cable rings are also packed in cartons as illustrated at left. Each box is plainly labeled for ring size, strand size, and kind of ring. It's easy to stock, store and transport these cable rings.

Laboratory and field tests prove the superiority of Chance Cable Rings. Next time, specify—CHANCE No-Tangle Packed Rings for greater satisfaction.

A·B·CHANCE CO. · CENTRALIA MISSOURI

placed in the hands of those responsible for the allocation of defense materials contracts, would bring about the very fact which we are urging, namely, the distribution of defense materials contracts in such a manner as to take full advantage of the various factors that are of so much importance in this picture.

After all, it is quite obvious that the matter of national defense is a matter of concern to each and every state as well as to each and every citizen, and in building up our program of national defense each should assume its proper place in the picture and its proper share of responsibility.

The interest of those of us living in the northwestern division might be summarized as follows:

(1) That other sections of the country know of conditions as they really exist in the states comprising the northwestern division.

(2) That those in charge of and responsible for the allocation of defense materials contracts have definite information concerning conditions in the states comprising the northwestern division.

(3) That those in charge of the allocation of defense materials contracts know accurately and definitely of the advantages and facilities which the cities of the northwestern division have to offer.

(4) That industry and labor in the cities of the northwestern division be given an opportunity to assume their fair share of the responsibilities of national defense and at the same time participate in any benefits to business and industry that might result from defense activities, these benefits to be in direct ratio to those enjoyed by other sections of the country.

▼ ▼

General Gains 2,065 Stations

General Telephone Corp. reported for its subsidiaries a gain of 2,065 company-owned telephones for the month of June, 1941, as compared with a loss of 23 telephones for the month of June, 1940. The gain for the first six months of 1941 totaled 22,825 (exclusive of purchases and sales) or 4.29 per cent as compared with a gain of 14,775 telephones or 2.95 per cent for the corresponding period of 1940. The subsidiaries now have in operation 554,851 company-owned telephones.

▼ ▼

Unique Wedding Present

As a wedding present to friends in California, Jose Iturbi, famous pianist, played to them for half an hour by telephone from New York.

Industry Needs High Priority Rating

(Concluded from page 9)

efficient and adequate communications with which it can defend itself. Telephone officials know only too well what happens to the industry financially when, in depressions which usually follow abnormal prosperous periods, they have enormous idle facilities and plant investments on which they cannot earn. They have experienced the disastrous results of this practice on previous occasions, and they are going to be extremely cautious not to over-expand their plants at this time. This is, we think, sufficient indication that any strategic materials allotted to the telephone industry will be conserved and used intelligently.

We believe a high priority can be secured for replenishment of a telephone manufacturer's ordinary stock of strategic materials if the full and complete facts are presented to the OPM and absolute assurance given that no attempt would be made to maintain a stock in excess of the usual inventories of the past few years.

It is recommended that concerted action of the entire industry be taken to give a full and comprehensive report to the OPM as to the vital necessity of maintaining adequate communications throughout the United States and its possessions, which is so clearly and completely reviewed by Colonel Grable in his articles in TELEPHONY.

It should be brought out that telephone systems both in thickly populated and isolated areas and telephones in both residences and business establishments as well as in military posts are essential to the nationwide network of communications. A complete and efficient national network is all-important in an all-out defense of this country, and it is in the nation's interest to keep all local telephone and toll systems in a position to continue to render the present standard of telephone service, which means expanding present facilities in order to meet increased demands for service.

▼ ▼

Monument to Telephone Pole

A monument to a telephone pole may be seen by automobilists on U. S. Route 30, in Wyoming, between Cheyenne and Laramie. It commemorates the first telephone pole set on the Lincoln Highway.

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Commissions and Courts

Appoints New Member Of Indiana Commission

Henry F. Schricker, governor of Indiana, has appointed George M. Barnard of New Castle as a commissioner on the Public Service Commission of Indiana. Mr. Barnard is a Republican and succeeds Moie Cook (Republican) of Logansport, who resigned.

For many years Mr. Barnard has practiced law in Indianapolis, and is a former law partner of U. S. Senator Frederick Van Nuys. He served as a member of the public service commission under former Governor McCray and, on several occasions, has been mentioned as a candidate for both governor of Indiana and U. S. senator.

Governor Schricker has said that Mr. Barnard was selected to the commission post because of his qualifications and that he was not an applicant for the position. Other members of the commission are Frederick F. Eichhorn of Gary and William A. Stuckey of Indianapolis.

▼ ▼

Asks Higher Rates for Metallic Service

Construction of metallicized lines to overcome inductive interference, claimed to have been set up by REA electric lines, was made the basis for an application by J. R. Butler, owner of the Mill Creek Telephone Co., and the Clarita Telephone Co. (both in Oklahoma), for increases in rates.

In his petition to the Oklahoma Corporation Commission, Mr. Butler stated that the REA built its electric lines over and parallel to his lines at Clarita and he was compelled to rebuild two of his lines, making them metallic, to eliminate the noise.

During the past two years, Mr. Butler states, he has been unable to make a return on his investment at Mill Creek and Clarita, and the added expense of metallicizing his lines has made it necessary to seek higher rates. In addition to asking for a special "metallic" rate on a portion of his rural lines, Mr. Butler asks for a $1.00 charge for connecting new telephones and a 50 cent move charge.

Farm Telephones Show Decrease in Nebraska

Telephones on Nebraska farms decreased from 93,888 ten years ago to 52,459 at the beginning of 1941, a drop of 43 per cent, according to figures released by the state division of agricultural statistics. As indicating that telephone companies are losing out in the competition for the customer's dollar, it is pointed out that 60 per cent more farmers are paying a minimum of $3.50 a month for electric service, while the decrease in the number of automobiles and motor trucks owned on farms has been but 10 per cent. The number of tractors, 64,593, is nearly double the number ten years ago.

Whereas but 43.2 per cent of the farmers have telephones, 89 per cent have automobiles, 18.6 per cent have motor trucks, 28.8 per cent electricity and 53.4 per cent have tractors.

▼ ▼

Summary of Commission Hearings and Rulings

Federal Communications Commission

June 26: American Telephone & Telegraph Co. requested authority to supplement existing facilities between Denmark, S. C., and Jacksonville, Fla.; and between Harrisburg, Pa., and a point about 14 miles west of Baltimore, Md.

June 26: Inter-County Telephone Co. requested authority to acquire and operate certain toll facilities located in the northwestern portion of the state of Missouri.

June 26: Authority requested by Pacific Telephone & Telegraph Co. to supplement existing facilities between Yakima and Walla Walla, Wash.

June 27: Diamond State Telephone Co. granted authority to amend application and to modify authorization granted pursuant thereto, in order to provide a larger number of cable conductors between Milford and Georgetown, Del.

June 27: Southern Bell Telephone & Telegraph Co. granted authority to supplement existing facilities between Charleston, S. C., and Savannah, Ga.

July 1: American Telephone & Telegraph Co. granted authority to supplement existing facilities between Salt Lake City, Utah, and the Idaho-Oregon state line, at an estimated cost of $1,270,000.

(Please turn to page 28)

Build Goodwill and Revenue

WITH THIS SMALL

P·A·B·X

Key type telephones, such as the one shown above, plus this compact switching unit, provide automatic intercommunication combined with fast trunk service at low cost.

This system — the 32A — serves up to six stations and is just the thing for residences and small offices where an attended system is impractical.

EARNINGS TOO LOW?

Try the 32-A. Its high service value commands a high rate, and its extra earning power will help to bring your percentage of net income to a more satisfactory level.

Distributors in U. S. and Possessions:
AMERICAN AUTOMATIC ELECTRIC SALES COMPANY
1033 West Van Buren Street, Chicago, U.S.A.

AUTOMATIC ELECTRIC

TELEPHONE SIGNALING AND COMMUNICATION APPARATUS

A New Story to Tell

National Defense has a far-reaching effect on the whole country. The advertisement reproduced here appears in national magazines during July. It reflects the spirit of the day as it applies to the telephone companies of our nation. Advertising like this should help to foster a better understanding of the problems of the whole telephone industry, in these busy times.

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More than a hundred new cities in the U.S.!

EVERY big military training camp is a city in itself. Like any city, it needs telephones.

But an ordinary city grows gradually over the years—and its telephone system grows with it. A *military* city may be built in a few months—often far from other towns. Here a telephone system must be set up *fast*—and linked with every other national nerve center by Long Distance lines.

It's a big job—made more so by the fact that some six hundred other expanding army and navy establishments — forts, flying fields, supply depots, arsenals, shipyards, etc.—also need hurry-up telephone facilities.

The Bell System is doing its best to meet these urgent defense needs — and at the same time satisfy the great and growing civilian demand for day-to-day telephone service.

Long Distance
helps unite the nation

"THE TELEPHONE HOUR" is broadcast every Monday. (N. B. C. Red Network, 8 P. M., Eastern Daylight Saving Time.)

AN ADVERTISEMENT OF THE BELL TELEPHONE SYSTEM

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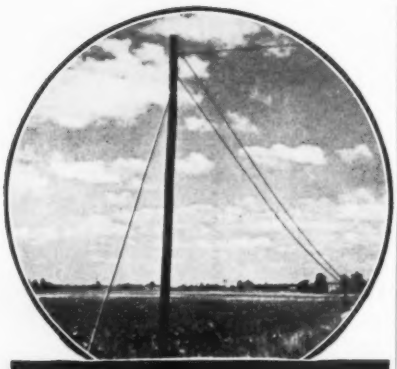

Crapo
HIGH-TENSILE
LOW-RESISTANCE
LINE WIRE

MEET RURAL DEMANDS WITH LONGER SPANS!

You now can extend rural telephone service more economically, more profitably, by building long-span lines with Crapo HTL-85 and Crapo HTL-135 High-strength Line Wire.

Marked reductions in construction costs, lower maintenance expense, improved transmission, are reported wherever these high-tensile, low-resistance line wires are in use.

Crapo HTL-85 permits spans of 225 feet in heavy loading, 325 feet in medium loading and 375 feet in light loading districts; provides stronger spans on existing lines.

Crapo HTL-135 makes practicable spans of 350 feet in heavy loading, 450 feet in medium loading and 500 feet in light loading areas.

Before you construct new rural lines or rebuild old ones, be sure to get all the facts about these revolutionary wires! Complete technical and construction practice information, available in booklet form. Write for Bulletins No. 201 and No. 202!

INDIANA STEEL & WIRE CO.,
MUNCIE, - - INDIANA

Manufacturers of

Crapo Galvanized Steel Strand, Telephone and Telegraph Wire, Construction Wire and Tie Wire.

(Concluded from page 25)

July 1: Granted authority to Pacific Telephone & Telegraph Co. to supplement existing facilities between Wyeth and The Dalles, Ore., at an estimated cost of $453,000.

July 1: Pacific Telephone & Telegraph Co. given authority to supplement existing facilities between Hood River, Ore., and the Oregon-Idaho state line, at an estimated cost of $767,500.

July 1: Edwin M. Blakeslee granted authority to hold positions as vice president of Indiana Associated Telephone Corp. and Michigan Associated Telephone Co.

July 2: Southern Bell Telephone & Telegraph Co. requested authority to supplement existing facilities between Wilmington, N. C., and Charleston, S. C.

July 2: Southwestern Bell Telephone Co. requested informal authority to supplement existing facilities in a portion of the section between Springfield, Mo., and Harrison, Ark.

Alabama Public Service Commission

July 15: Hearing on petition of L. D. McDonald for authority to sell property and assets of the Springville Telephone Co. to W. Fred Jones.

California Railroad Commission

July 9: Los Gatos Telephone Co. authorized to file with the commission exchange service schedules for key system service and colored handsets.

Illinois Commerce Commission

July 15: Hearing at Chicago in the matter of application by Eastern Illinois Telephone Co. for an order authorizing the issue of $125,000 par amount of first mortgage 4½ per cent bonds to be dated July 1, 1941 and to mature July 1, 1961.

Minnesota Railroad & Warehouse Commission

July 1: Granted applications of Aitkin-Deerwood Telephone Co. for authority to place in effect new and higher rates at Aitkin and Crosby, when those exchanges are converted to common battery operation. The old and new rates include the following:

Business individual line, raised from $2.75 to $3.75; business two-party, $2.50 to $3.25; residence individual line, $2.00 to $2.50; residence two-party, new, $2.25; residence four-party, $1.50 to $1.75. Discount of 25 cents if paid on or before 20th day of month in which service is rendered.

Nebraska State Railway Commission

July 10: Application filed by Lincoln Telephone & Telegraph Co. for authority to eliminate from its tariff sheets all rates for two-party residence service in its exchanges at Adams, Brock, Burr, Cook, Milligan, Ong, Pickrell, Shickley, Steinauer, Tobias and Western. No two-party service is being demanded at these exchanges, except at Tobias and Western, where but a few subscribers to that service are listed.

July 10: E. C. Hunt, chief owner of the Blair Telephone Co., of Blair, applied for authority to refund $50,000 bonds now outstanding bearing 4 per cent interest by issuing a like amount of 3½ per cent bonds. He also asked authority for the Public Telephone Co., also of Blair, to issue $40,000 of 3¾ per cent bonds to replace $36,000 of 4½ per cent bonds now outstanding.

July 14: Hearing held on application of Central Electric & Telephone Co. of Sioux City, Iowa, for authority to issue 100,000 shares of cumulative preferred stock having no par value and 100,000 additional shares of common stock with a par value of $1.00. Taken under advisement.

New York Public Service Commission

July 17: Hearing at Albany on petition of Sharon Telephone Co. for consent to the sale of a portion of its telephone plant to Copake Telephone Co.

Ohio Public Utilities Commission

July 8: Approved application of the United Telephone Co. to increase the rates in its Marysville, Magnetic Springs, Milford Center and Raymond exchanges. See TELEPHONY, May 3, p. 24.

July 8: Application filed by Ohio Standard Telephone Co. seeking authority to increase its rates in the Arlington, Forest, Jenera, Mt. Blanchard, Rawson and Wharton exchanges. The petition stated that prevailing rates do not produce sufficient revenue to pay expenses, maintain the properties, and allow a return on the company's investment. The proposed rates are:

Business independent line, to be increased from $2.25 to $4.50; two, three and four-party lines to be discontinued; business rural, $1.50 to $3.00. Residence independent line, $1.50 to $1.75; two and three-party lines to be discontinued; four-party, $1.50 to $2.25, and rural, $1.50 to $2.00.

July 9: Oil Belt Telephone Co., engaged in the conversion of its exchange at Portage into an unattended automatic plant, petitioned for authority to abandon its exchange at Rudolph and to hereafter furnish the 82 subscribers now served there with rural service from the Portage exchange.

Company stated in its petition that because of the small number of subscribers, operation of the Rudolph exchange has been unprofitable, and that because of the conditions and character of the territory served by the Rudolph exchange, it has been and will be impossible to develop additional business. Hearing on the petition has been set for August 15.

Oklahoma Corporation Commission

July 31: Continued hearing on application of the Oklahoma Rural Telephone Co., of Enid, to establish toll connection with the Southwestern Bell Telephone Co. at Drummond.

Wisconsin Public Service Commission

July 15: Hearing at Menomonie on proposed extension of the Eau Claire County Telephone Co. to serve subscribers in certain sections of the town of Spring Brook, Dunn county.

July 16: Hearing at Eau Claire on application of Strum County Telephone Co. to extend its lines to serve three prospective customers in the town of Unity, Trempealeau county.

XUM

Look at these Prices...
THIS 3/8" COPPERWELD TELEPHONE GROUND ROD WITH ANNEALED COPPER PIGTAIL COSTS ONLY 33¢
THIS 3/8" COPPERWELD TELEPHONE GROUND ROD WITH TYPE B CLAMP COSTS ONLY . . . 35¢
* THESE PRICES MAY DIFFER SLIGHTLY DEPENDING UPON DESTINATION

Easy TO BUY

And the low initial price is only the beginning of Copperweld economy. The thick layer of pure copper prevents rust and provides a copper-to-copper contact with the grounding wire. A Copperweld rod provides a *permanent*, safe, dependable ground.

Easy TO DRIVE

A hammer is the only tool you need for driving Copperweld non-rusting ground rods. The stiff steel core makes rod driving as simple as driving a nail. The top ends of all Copperweld rods are chamfered to reduce mushrooming during driving. Clamps may be slipped over the tops of the rods *after* driving.

Easy SIMPLE CONNECTIONS

Rugged one-fold Copperweld clamps provide the simplest and most dependable means of connecting the grounding wire to the rod. Where pigtail connections are desired, Copperweld Telephone ground rods are furnished with either 18 or 36-inch .104 annealed copper wires clipped and soldered firmly to the rod.

Better Grounds for Less Money with Dependable Non-Rusting Copperweld Ground Rods

COPPERWELD STEEL CO.
GLASSPORT, PA.

COPPERWELD
NON RUSTING GROUND RODS and CLAMPS

BELL TELEPHONE MAGAZINE

Credits Independents

By R. C. RENO

IN AN ARTICLE entitled "Independent Telephone Companies" by H. M. Pope in the May, 1941, issue of the *Bell Telephone Magazine* (formerly the *Bell Telephone Quarterly*), the American Telephone & Telegraph Co. pays high tribute to the progressiveness of Independent telephone companies in coordinating their systems with those of the Bell System to provide an efficient nationwide telephone service.

The article has attracted considerable attention among Independent companies because they have felt that in the past the Bell interests have not given them their share of the credit for the high development of the telephone art. Naturally, the Independents are pleased to receive the commendation which they deserve.

It goes without saying that service rendered by many Independents is as good and as efficient as that rendered by Bell companies and that Independent manufacturers produce equipment equal in quality to that produced for the Bell System. Therefore, it is no more than right that the Independent industry should receive just credit for the contributions it has made, both to the operating and manufacturing fields.

"People living in areas served by Bell telephone companies may not have occasion to know that, in addition to the 24 operating companies included in the Bell System, there are 6,400 other telephone companies whose management and personnel play a most important part in giving the United States what is often termed 'the best telephone service in the world'," states the first paragraph of the article.

It continues: "That the high standard of telephone service in the United States reflects a high degree of cooperation between the Bell and connecting companies must, of course, be apparent . . . Without such cooperation, telephones could not be so quickly and readily connected one with another, for obviously there is a most complex operating problem in so combining the properties of thousands of companies that anyone anywhere can pick up a telephone and talk to anyone else anywhere else."

The article points out that Independent connecting companies range from those having not more than 10 telephones to those having more than 100,000 instruments. The history of the United States Independent Telephone Association is outlined, and the association by-laws are quoted as follows:

"The object for which it (the USITA) is formed is to aid the Independent telephone industry and to furnish to its members information and advice upon all subjects relating to telephony; and to authorize its officers or committees to represent the Independent telephone interests before any commission, excutive officer, legislative or regulatory body of the United States or of any state."

"One of the first activities of the United States Independent Telephone Association was to encourage the formation of state associations to work in cooperation with the national body," the article states. "There are now 32 state associations. These provide a clearing house for information of interest to their members through annual meetings, frequent group meetings, through advice on problems of all kinds relating to the industry, and through their relationship with the United States Independent Telephone Association. There have been many evidences of cooperation between the Bell System companies and connecting telephone companies and their state and national associations . . . The national and state associations have been of great value to connecting companies throughout the country."

Introducing the important subject of handling interchanged toll messages, the article states: "The relationships growing out of the exchange of millions of toll messages between connecting companies and Bell companies cover practically every phase of the business. Only through the closest cooperation is it possible to coordinate the efforts of both groups so that a high grade of telephone service will be provided."

HUBBARD
POLE LINE
HARDWARE
Handy
"Handy to work with", say linemen of Hubbard Pole Line Hardware. That's because these products are scientifically designed for easy handling and fast installation.
"Hang The Load On HUBBARD HARDWARE"
DISTRIBUTED BY
AMERICAN
AUTOMATIC ELECTRIC
SALES COMPANY
1033 WEST VAN BUREN STREET · CHICAGO, ILLINOIS
BRANCH WAREHOUSES AT DALLAS, KANSAS CITY, LOS ANGELES, RICHMOND (VA.) AND SAN FRANCISCO

Since 1925, the author points out, the speed of service of toll calls handled by the Bell companies has been improved from an average of 7.3 minutes to 1.4 minutes at the present time. To accomplish this result required "close cooperation between Bell and Independent companies, and the service today exemplifies such cooperation . . . *The connecting companies have done their share in contributing ideas as to improvement of both equipment and operating technique.*" (Italics supplied.)

Several pages and diagrams are devoted to a discussion of the general toll switching plan, and the part the Independent companies play in its efficient operation. Also touched upon are the traffic agreements between the Bell and connecting companies. Concluding, the article says:

"The fine toll service which is enjoyed today didn't just happen, but is the result of careful planning, together with excellent teamwork on the part of hundreds of thousands of employes engaged in the industry. While the Bell System and the connecting companies throughout the country have for years worked together harmoniously to provide this country with the best telephone service in the world, they are now even more determined in their efforts to meet successfully the important problems that will face the industry during the coming days."

The author of the article, Mr. Pope, is general commercial problems engineer for the A. T. & T. Included in the illustrations is the map prepared by the United States Independent Telephone Association, showing the location of each of the 12,000 Independent exchanges.

Telephone men who have not read this fine tribute to the Independent industry will want to look up the May issue of *Bell Telephone Magazine.*

In the Nation's Capital

(Continued from page 14)

must accompany Price Control if the latter is to be effective.

So far, Leon Henderson has passed very gingerly over the question of putting a ceiling over wages, which is probably smart strategy. After all, prices rather than wages constitute his particular administrative domain (OPACS). But once a Price Control law is on the books, Congress might be more in the mood to take the consistent view that wage control must follow.

Before dropping this subject, let us see just why it is that price inflation now threatens us and why it is so desirable to avoid it.

One very fair argument might be made that since we must increase our production to take care of both defense and civilian needs, higher prices are not necessarily inconsistent with that objective.

Leon Henderson answers this argument very well in an article which appears in the current issue of the *Harvard Business Review.* He says, in effect, "Yes, it is true that up to a certain point a price increase will stimulate production— which is all to the good." He goes on to give examples of how this very thing has happened in the case of mercury, zinc, and machine tools, where higher prices have already resulted in the discovery and reclaiming of certain productive facilities which had remained unused during a period of lower prices.

But, where a general upward trend of prices continues we reach a certain point where this stimulation of production ceases. It is replaced by what the economist calls a "psychology of inflation." When this point is reached we witness:

(1) Hoarding and withdrawing of supplies from the market to anticipate shortages or higher prices later on.

(2) Cessation of productive expansion in the case of industries which have run headlong into physical limitations, such as material shortages.

(3) Labor discontent over cost of living fluctuations—resulting in further interference with production.

(4) Frightened capital, which would normally invest in more productive capacity under the lure of higher prices, becomes unwilling to assume the abnormal risk inherent in an emergency type of expansion (thereby making it necessary for the government to assume much of the risk in order to keep the defense machine going).

The reason why prices go up is elementary enough. In a free market, it happens whenever the demand is greater than the supply. That is another way of saying that when our production machine is running wide open and all the unemployment slack has been taken up, a further increase of the demand as a result of the combined defense and civilian

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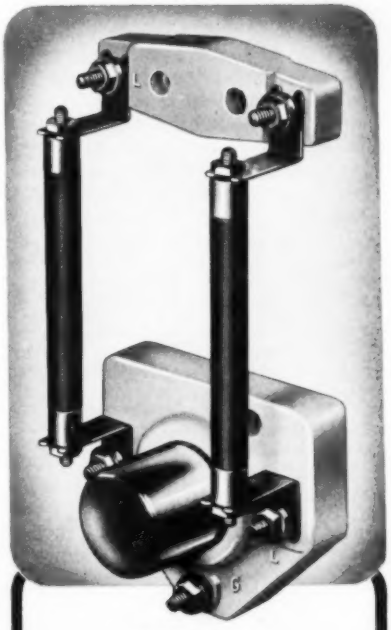

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needs just naturally boosts the price. Under such circumstance, if there is no control through such devices as priorities, it is entirely possible for defense authorities and civilian population to start bidding against each other for the same products—which would never do at all.

Soon after these elementary price increases appear, businessmen naturally try to expand. They use up all their cash and then try to raise credit. This swells the deposits and loans in the bank, which feed each other in increasing velocity. The government, itself, if it borrows from banks rather than directly from the people through defense bonds, contributes to this credit inflation.

Why is this bad? Mr. Henderson gives us three reasons:

(1) It increases the cost of the defense effort. The dollar of tax debt spent for defense today has to be paid by a future dollar which will be much harder to earn.

(2) Discontent arises, injustice is done and industrial breakdown can come from those interests—such as telephone companies and other utilities—which cannot adjust their prices but must absorb rising costs.

(3) History shows that inflation is always followed by deflation. Another depression such as the one during the last decade might give rise to an undesirable change in our social system.

* * *

There are a number of ways in which inflation can be curbed. The best way—which is to say, the ideal way — would be to keep expanding production to meet all demands, both civilian and military. If that could be done, there need be no price rise, and we could have both guns and butter.

But our production machinery and our sources of raw materials, wonderful as they are, are not capable of such limitless expansion in such a brief time. It is expected that the nation's defense effort will soon be taking up 40 per cent of our entire productive capacity. Your correspondent has only unofficial figures for it; but he understands that already 15 per cent of the telephone manufacturing industry has been taken up directly by defense work. It may be more than that.

But even if our production machinery cannot be expanded indefinitely to prevent inflation, it does help if we stretch it as far as possible. This can be done by utilizing alternate materials; by greater efforts in the direction of standardizing models, colors, sizes; by making more efficient use of human energy required for packing, counting, delivery, etc.

The government can do its share: (1) by coordinating its purchases (to keep the Army and Navy and British from bidding up prices against each other); (2) by taxing civilian goods which compete with defense production; and otherwise killing two birds with the same tax stone in the form of curbing mass consumption and increasing government revenues; (3) by keeping its bonds out of the public banks and resorting to bond sales to individuals; (4) by using its influence to curtail long-term credit and withdrawing certain credit subsidies it now contributes to civilian spending which might be deferred; (5) by cutting out the public spending for non-defense projects which could be put on ice as a backlog against the deflationary reaction after the defense program is completed.

When all these efforts to stretch the production machinery have been taken, we will probably see that the demand is still running ahead of the production. Prices will still tend to go upward unless some form of direct control is exercised. It has already been exercised, as we have seen, in the form of moral suasion by Mr. Henderson, but a Price Control law with real teeth in it is the only truly effective weapon.

Next week your correspondent will try to explain further some of the complications and risks involved in Price Control and wage control: The problem of competition for skilled labor; the problem of how small manufacturing plants and businesses can possibly survive in an atmosphere of monopolistic Price Control dominated by the most powerful competitor. There is the problem of retail rationing to keep scarce necessities from going to the longest purse. These are serious problems.

▼ ▼

Long Distance Time Service

Although the Pacific Telephone & Telegraph Co. has no time-announcing service at Sacramento, Calif., such calls are available there by dialing 8-9000. The calls are automatically switched to the time operator in San Francisco, more than 100 miles away. —*Collier's.*

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Answers to Traffic Questions on Page 16

1. Ordinarily, the toll center requests the tributary to collect the amount of the charge. In some instances where the toll center operator is able to hear the signals when coins are deposited, she requests the customer to deposit the amount of the charge.
2. No. Conditions of this kind should be referred to the chief operator in the toll center exchange.
3. Report the trouble to your chief operator so that she may pass the information to the toll center chief operator. This trouble may be due to faulty equipment.
4. You might say, for example, "I am sorry, we are not permitted to give out that information."
5. Yes. The calling party may not wish to talk to the called party at the second number.

XUM

Personals

M. R. BECKER, president and manager of the Pawnee Telephone Co., Pawnee City, Neb., was recently elected president of the local Lions club.

•

F. O. CUPPY, general manager of the Indiana Associated Telephone Corp., with headquarters at La Fayette, has been named president of the company, succeeding **J. F. O'CONNELL,** who was named chairman of the board. The Indiana Associated company operates approximately three dozen exchanges in Indiana.

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JOHN T. DETCHON, Indiana owner and operator of extensive telephone holdings, has recently purchased three new properties in Indiana. They are the Belmont Telephone Exchange of Belmont; The Kingman Telephone Co. which operates at Kingman, Cates and Silverwood, and the Citizens Telephone Co. of Newport.

•

HERMAN E. HAGEMAN, president of the Lorain County Radio Corp., Lorain, Ohio, explained the operation of his Great Lakes ship-to-shore radio service on a recent nationwide NBC network broadcast.

The program, one of a weekly series depicting the "all-out" efforts of various industries in the defense program, summarized the story of production and transportation of iron ore on the Great Lakes. Mr. Hageman was one of several guests introduced by Announcer Graham McNamee.

Mr. Hageman told how his company pioneered in the development of radiotelephone service for ships, and used the system to connect the radio audience with Capt. M. G. Allen of the freighter Thomas Walters, out on the lake with a cargo of ore.

•

SYLVAN J. PESHAK, who has been associated with the telephone business in St. Ansgar, Iowa, for the last 40 years, was honored by his friends and associates with a banquet upon his retirement June 1.

Although Mr. Peshak's association and interest in telephone service dates as far back as 1894, it was not until 1901 that an exchange was really established in St. Ansgar.

In 1894 Mr. Peshak installed the first electric telephone in St. Ansgar, which connected a residence with an implement shop, with wires running across housetops and on scantlings.

In 1901 when R. C. Lubiens, Martin Moe and Mr. Peshak organized the St. Ansgar Telephone Exchange Co., Mr. Peshak took over the management of the enterprise and continued on the job until his retirement. The exchange is now owned by the Central Iowa Telephone Co.

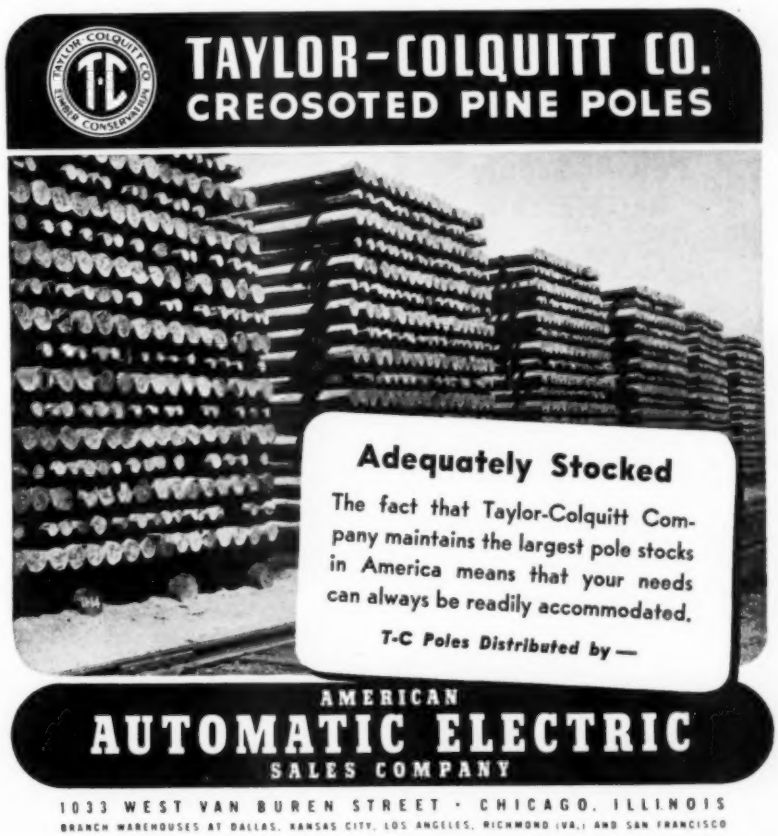
•

ELLIS B. BAKER, secretary and treasurer of the Southern New England Telephone Co., New Haven, Conn., will retire August 1 after 42 years of service and will be succeeded by **GEORGE G. COPELAND,** assistant secretary and assistant treasurer. Mr. Baker's father, Ellis Benjamin Baker, served as general superintendent of the company from 1880 to 1902.

Mr. Baker entered the company's service in 1899 as manager of the Meriden exchange, becoming superintendent of the private branch exchange department of the company in 1900. Later he was in charge of the production of the company's telephone directory, and next served as auditor of disbursements. For 17 years he was general auditor. In 1931 he was elected vice president in charge of accounts and finance, and in 1933 became secretary and treasurer. Mr. Copeland entered the company's service in the plant department in 1921, later acting as traveling auditor and secretary's assistant. He has held his present post since February, 1936.

•

When **HAROLD J. BARBER,** of Cleveland, vice president of the Ohio Bell Telephone Co., was elected president of N. C. Kingsbury Chapter, Telephone Pioneers of America, the pioneers also broke a long-established precedent and elected two women as vice presidents. **MISS MABEL McDONNELL,** Ohio Bell division personnel supervisor, became the new vice president of the chapter's Akron council and **MRS. BESS BOLENDER,**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Ohio Bell supervisor instructor, was elected vice president of the Columbus council.

Other new vice presidents, all Ohio Bell employes, are John C. Grusenmeyer, Dayton council; Clyde B. Calhoun, Zanesville council; Melvin A. Horne, Toledo council, and Frederick D. Walthour, Cleveland council. Each of these cities is the council headquarters for the section of the state in which it is situated.

•

A varied and eventful career in the telephone business culminated June 30 with the retirement of **DAVIS H. MORRIS,** assistant vice president of the Ohio Bell Telephone Co., under provisions of the Bell System pension plan.

Mr. Morris was born in Toledo, Ohio, on June 26, 1876, and lived there during his early years. He moved to Gloucester, Mass., and next to Chicago, Ill., where he finished his grammar school work. He was sent to Granville Academy at Granville, Ohio and upon completion of his preparatory work, he entered Denison University at Granville, where he remained for two years. Then he was transferred to Harvard University where he was graduated in 1897 *cum laude* with a degree in civil engineering.

His first job was engineer in charge of construction of Soldiers' Athletic Field at Harvard. Then he entered Bell telephone work in Philadelphia—at first as a student worker, but soon joining the installation and construction forces. He helped install the first common battery central office in Philadelphia and place the first vitrified tile conduit used by the Bell company in that city.

After five years of telephone work, Mr. Morris left the company and for seven years held various positions.

In June, 1909, Mr. Morris went back to the telephone business as a special agent in Columbus, Ohio, for the Central Union company, predecessor of the Ohio Bell. He became advertising manager for the Ohio division of the Central Union company in January, 1911, and three months later was appointed sublicense agent in Dayton. From May to August of 1912, he worked on a development study of the Dayton area and in September of the same year went to Cleveland as exchange plant engineer for the old Cleveland Telephone Co. He has since served in various executive capacities in Columbus and Cleveland.

An ardent lover of good music, Mr. Morris has studied voice and plays various musical instruments. For 25 years he directed choirs and glee clubs in various states, including the Dayton Glee Club which sang in Washington, D. C., at the inauguration of William Howard Taft as president of the United States.

•

ROBERT CARLISLE, who for the past four years has been local manager of the Illinois Consolidated Telephone Co. at Charleston, has been promoted to the post of general commercial manager, with headquarters at Mattoon. He is succeeded at Charleston by **V. L. HEETS.**

▼ ▼

OBITUARY

JOSEPH A. LEONARD, division equipment engineer of the Southern Bell Telephone & Telegraph Co. at Jackson, Miss., died at Biloxi recently. He was 57 years old.

•

HOBART C. YOUNG, general manager of the western area of the Bell Telephone Co. of Pennsylvania, died recently in Pittsburgh, at the age of 53. Born in Batavia, N. Y., he entered the company service after graduation from Cornell University in 1910. In 1913 he was made local manager at Warren and later at Erie.

He rose through the positions of district manager at Erie, editor of the company's employe magazine, general commercial manager at Philadelphia, general manager for eastern Pennsylvania and vice president in charge of public relations.

•

T. M. KIRBY, 75, owner of the Union City (Okla.) Telephone Exchange, died June 21, following a six weeks' illness.

Mr. Kirby had been a resident of Union City for 44 years. Before entering the telephone business he was a contractor. He also owned and operated farms in Canadian county.

Mr. Kirby is survived by his wife, Mrs. Ida Kirby; one son, E. M. Kirby, of Union City and three daughters, Mrs. Zay McMahan, Norman, Okla.; Mrs. W. McMurray, Denver, Colo., and Mrs. Richard Pappe, Kingfisher, Okla.

•

PERRY T. PERIN, for 30 years until his recent retirement manager of the Green Springs, Ohio, Telephone Co., died at his home July 7 after an illness of several months.

Known as "Seneca county's busiest man," Mr. Perin was also a justice of the peace, Seneca county coroner for 14 years, clerk of the Adams township trustees, member of the Adams school board for 35 years, and trustee of the Green Springs cemetery for 25 years.

XUM

Gardner Acting Chief Engineer Of Kellogg Company

M. K. McGrath, president, Kellogg Switchboard & Supply Co., Chicago, has announced that F. G. Gardner of the engineering staff has been selected to fill the position of acting chief engineer. This appointment places a veteran of 40 years' experience in the electrical communications industry at the head of the engineering department and research laboratory of one of the oldest and largest Independent telephone equipment manufacturers. George R. Eaton, vice president in charge of engineering, is taking a leave of absence at the advice of his physician because of ill health.

F. G. GARDNER

As a member of the Kellogg staff, Mr. Gardner has been engaged in special transmission engineering work, and his background before coming to Kellogg included extensive experience in both the telephone and telegraph communication fields.

He began his career with Western Union as traffic supervisor and engineering maintenance man. For several years Mr. Gardner was telephone and telegraph engineer of the New York Central railroad lines.

Before going to France in 1917 as first lieutenant in the 315th U. S. Signal Corps Battalion, Mr. Gardner was associated with A. T. & T. Co. After the World War, he joined the staff of the Bell Telephone Laboratories and later became chief engineer for Electrical Research Products, Inc., in London.

Mr. Gardner spent three years in Africa, from 1930 to 1933, with International Standard Electric Corp., handling a large telephone project covering all of the Union of South Africa, Northern and Southern Rhodesia. His work with International Telephone & Telegraph Corp. included communication projects in Russia, Italy, Argentina, and Australia.

For the past 12 years, Mr. Gardner's activities have been principally centered in commercial engineering problems. He brings to Kellogg customers a broad experience and a complete understanding of operating company problems.

▼ ▼

Leich's New Ohio Representative

R. W. Siemund, president of Leich Sales Corp., Chicago, recently announced the appointment of Bill Mossman as the company's Ohio representative.

Mr. Mossman comes from a family which has long been identified with the telephone and electrical industries and is well fitted by his training and experience for his new position.

After leaving Northeastern University in 1934, Mr. Mossman was employed by a telephone manufacturer as a sales representative in Boston, Mass. In 1936 he accepted a position with the state of Pennsylvania.

BILL MOSSMAN

In recent years, Mr. Mossman has devoted much time to the development of relays and conducted research work in that field in Chicago. To serve Leich's Ohio customers, he will make his home in Kenton, Ohio.

▼ ▼

Suggest Draftee Telephone List

A suggestion that the Cincinnati & Suburban Bell Telephone Co. carry a special listing in the telephone directory for professional men who have been called in the draft so that they might not lose the good will established while building a practice, has been made by a representative of the Cincinnati Junior Chamber of Commerce.

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"Telephony's" Engineering Data

By J. Ernest Hartz

Materials and Equipment for Underground Conduit Construction

The various materials and equipment required for underground conduit construction depend upon the method of construction adopted. This will vary somewhat depending upon the size and location of the job and upon various other local factors. No attempt will be made to give a complete list of materials required to cover all of the possible variations in the technique of conduit construction. Instead, the list given in

Table 1. Materials for Manhole Construction

Item	Unit	Amount: For 3'x4'x5' Manhole	Amount: For 3½'x6'x5' Manhole
Concrete*	cu. yds.	2	3
Cement	bags	9	14
Sand	cu. yds.	1	1½
Gravel	cu. yds.	2	3
Brick, for collar	Each per Layer	33	33
Reinforcing Iron Rods (½")	ft.	†119=102 lbs.	‡50=43 lbs.
Retainers (Inserts)	ea.	16	16
Cable Racks	ea.	3 or 6	3 or 6
Cable Rack Hooks	ea.	12	16
Pulling-in Irons	ea.	2	2
8" Sewer Tile (for sump)	ea.	1	1
Manhole Top	ea.	1	1

* 1:3:6 mixture for walls, 1:4:8 for floor, and 1:2:4 for top.
† 22 pieces 4'2" long, and 4 pieces 6'8" long.
‡ 10 pieces 3½' long, 2 pieces 4½' long, and 2 pieces 3' long.

Table 1 will be based on several assumptions found by experience to cover average conditions satisfactorily. These assumptions are as follows:

1. Use of sectional steel manhole forms for the construction of concrete manholes. These may be erected quickly and easily by unskilled labor and will greatly simplify the work. It will be found that use of two sizes of such forms will provide enough variation in size to meet practically all conditions.

"Telephony's" Engineering Data

By J. Ernest Hartz

Table 2. Number of Ducts and Width of Trench

Depth of Trench	Number of Ducts	Width of Trench
40 inches or less	2, 4, 6, 8, or 10	15 inches
	9, 12, and more	19 inches
41 to 48 inches	2, 4, 6, 8, or 10	18 inches
	9, 12, and more	19 inches
49 to 96 inches	any	24 inches

Sizes suggested are: *3 by 4 feet with five-foot headroom* for two-duct straight runs where cable smaller than 303-pair, 22-gauge with stubs or 404-pair, 22-gauge without stubs will be installed; and *3½ by 6 feet with five-foot headroom* for use on four-duct straight conduit runs and in two-duct runs where the main conduit changes direction sufficiently to require a "J," "L," or "T" type manhole or where cable larger than 202-pair, 22-gauge with stubs or 303-pair without stubs will be installed.

Steel forms in both of these sizes can be purchased complete with a steel collar of adjustable size for constructing the entrance opening.

Table 3. Material for Laying Multiple Clay Conduit (per 100 feet of trench)

Number of Ducts	Mortar: Mixture (cu. yds.)	Mortar: 1 Cement (bags)	Mortar: 3 Sand (cu. yds.)	Cheesecloth or New Cloth Bandage (yards)
2	0.16	1.5	0.17	10
4	0.18	1.75	0.19	11
6	0.21	2.0	0.22	13
8	0.37	3.5	0.39	21
9	0.24	2.25	0.27	16
10	0.40	3.75	0.44	24
12	0.42	4.0	0.47	26
15	0.45	4.25	0.50	28
18*	0.47	4.5	0.52	30
18†	0.63	6.0	0.70	39
20	0.74	7.0	0.78	47
24	0.81	7.75	0.86	52

* Conduit cross-section made up of two nine-way M.C.C.
† Conduit cross-section made up of three six-way M.C.C.
Note: Two-duct M.C.C. is usually easily obtainable in two-foot lengths—other conduit in three-foot lengths.

"Telephony's" Engineering Data

By J. Ernest Hartz

Table 4. Material for Concrete Base and Top for Multiple Clay Conduit (per 100 feet of trench)

Width of Trench (inches)	Base: Mixture (cu. yds.)	Base: 1 Cement (bags)	Base: 4 Sand (cu. yds.)	Base: 8 Stone (cu. yds.)	Top: Mixture (cu. yds.)	Top: 1 Cement (bags)	Top: 4 Sand (cu. yds.)	Top: 8 Stone (cu. yds.)	Base and Top: Mixture (cu. yds.)	Base and Top: 1 Cement (bags)	Base and Top: 4 Sand (cu. yds.)	Base and Top: 8 Stone (cu. yds.)
15	1.7	5.5	0.8	1.6	1	3.3	0.5	1	2.7	8.8	1.3	2.6
18	2.0	6.5	0.95	1.9	1.3	4.0	0.6	1.2	3.2	10.7	1.6	3.2
19	2.14	7.0	1.0	2.0	1.4	4.4	0.65	1.3	3.5	11.3	1.7	3.4
24	2.8	9.0	1.3	2.6	1.8	5.9	0.9	1.8	4.6	15.0	2.2	4.4

2. Lists of materials required will be given on the following two alternatives as regards type of conduit to be used:

(a) Main runs to be constructed with multiple duct vitrified clay conduit with 3¼-inch diameter holes, with laterals of 2-inch diameter creosoted wood conduit.

(b) All conduit to be constructed of three-inch diameter cement-asbestos, or fibre conduit.

Lists of manhole hardware and supplies are, of course, independent of the type of conduit used. Average conditions for the manhole size suggested above are given in Table 1.

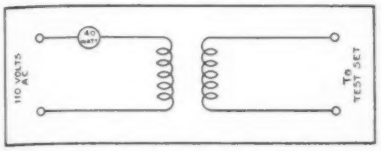
Materials needed for laying and protecting multiple clay conduit are indicated in Tables 3-5. An allowance of approximately 10 per cent for wastage has been made in these figures. This allowance is considered entirely proper as experience shows that materials for construction of this type estimated on a strictly theoretical basis are always insufficient.

Materials for base, top, and complete encasement of multiple clay conduit are based on trench widths as indicated. The width of the trench depends upon the depth and number of ducts it is to contain (see Table 2).

The Plant Man's Notebook

(Continued from page 15)

make use of 115 volts DC supplied by an old radio set for testing.



Alternating current is connected to the test board by means of a ring-through type repeating coil. A 40-watt lamp is connected in the primary for protection.

"In testing a local battery one-station line with this arrangement, the AC meter will indicate a few volts to ground which will indicate capacity. When connected across the line, the meter will register a few volts due to the bridge of the telephone. The test does not show short to AC on account of the high reactance of the bells. With normal readings recorded on the subscriber's line cards approximate trouble locations can be determined. Ours is a small company and well-trained trouble-shooters are not always available, so this testing arrange-

Note: Two-duct M.C.C. is usually easily obtainable in two-foot lengths—other conduit in three-foot lengths.

upon the depth and number of ducts it is to contain (see Table 2).

of two sizes of such forms will provide enough variation in size to meet practically all conditions.

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▼ ▼

Knocks Over Telephone in Falling; Gets Help

The telephone recently played an unusual part in summoning help for Miss Emma Schreiber, an elderly woman living in Duluth, Minn., in an incident worthy of the attention of Ripley's "Believe it or Not." Miss Schreiber, who lives alone, started to descend the stairway in her home, but tripped and fell headlong.

Rolling to the foot of the stairs she struck a small table on which rested a telephone instrument. The jar threw it to the floor and disconnected the receiver, and as the woman fell unconscious the transmitter rolled so close to her mouth that the operator, answering the flash, heard her heavy breathing.

Miss Schreiber's next-door neighbor, summoned by the operator, was unable to gain admittance. Police broke in and found the woman unconscious and suffering from a broken arm and skull fracture. As she seldom had company and was a recluse, the lucky chance probably saved her life.

FOR SALE

A WONDERFUL BUY: An automatic switchboard made by the Automatic Electric Company, practically in as good condition as when it left the factory. It has fifty numbers, a ringing and charging apparatus, and terminal facilities, all now in a glass case where it has been operating, and is ready for release. The cash price of the board and equipment is $1,000.00. The board has been used by the State of Michigan at the State Hospital at Caro, Michigan, but because of the peculiar needs of the institution, it has been replaced by a manually operated board. Moore Telephone System, Caro, Michigan.

FOR SALE: Two telephone plants. Both county seat towns, twenty-two miles apart. Write No. 9035, care of TELEPHONY.

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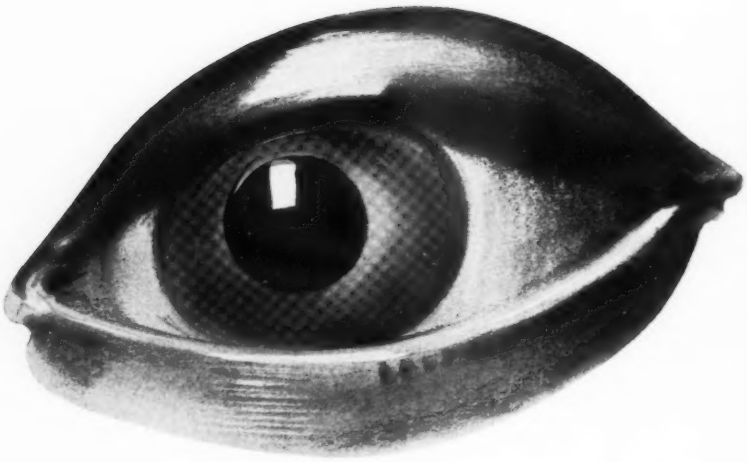

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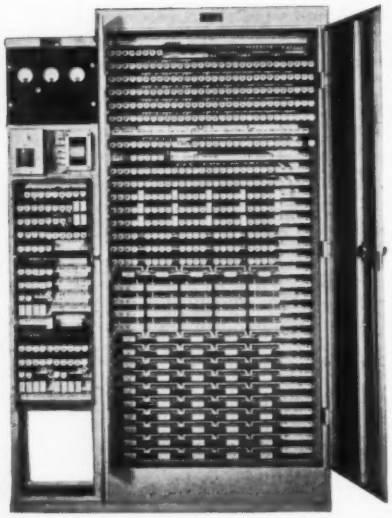

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